

Novel pyrazole–oxadiazole–chalcone/oxime hybrids as dual EGFR/VEGFR-2 inhibitors with promising anticancer potential: a comprehensive cytotoxicity evaluation, mechanistic insights and SAR analysis

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***In vitro* assay on full NCI -60 cell lines:**

Table 1: GI % for *in vitro* subpanel tumor cell lines at 10 μ M concentration for compounds **10a-c** and **11a-c**

Subpanel	Compounds.					
	10a	10b	10c	11a	11b	11c
Leukemia						
CCRF-CEM	37.13	74.24	11.45	194.34	191.7	134.26
HL-60(TB)	48.62	12.46	20.44	193.79	193.71	157.64
K-562	31.85	52.54	33.95	141.6	148.14	82.49
MOLT-4	28.62	48.19	NA	193.56	197.01	183.5
RPMI-8226	22.91	70.59	32.25	171.64	180.78	139.49
SR	74.01	97.54	68.86	196.58	197.63	192.53
Non-Small Cell Lung Cancer						
A549/ATCC	23.49	39.46	40.38	61.94	69.87	74.22
EKVX	69.67	96.2	150.99	115.98	124.75	102.4
HOP-62	ND	ND	ND	ND	ND	ND
HOP-92	37.59	102.65	145.73	66.79	86.42	68.44
NCI-H226	31.98	86.31	147.15	103.14	110.08	106.99
NCI-H23	36.94	76.11	94.43	94.15	103.5	74.59
NCI-H322M	NA	18.01	41.92	47.78	59.74	37.27
NCI-H460	28.82	59.79	69.96	98.89	129.57	86.97
NCI-H522	122.26	72.78	158.06	169.53	170.78	168.8
Colon Cancer						
COLO 205	NA	12.26	NA	75.75	70.1	NA
HCC-2998	NA	NA	20.09	71.49	81.65	32.74
HCT-116	17.29	41.14	70.66	79.33	89.07	65.75
HCT-15	NA	33.2	19.19	77.17	79.71	60.24
HT29	NA	36.79	27.06	101.05	93.72	63.75
KM12	26.11	46.96	31.5	99.23	132.88	80.89
SW-620	NA	42.38	28.1	83.94	91.49	18.45
CNS Cancer						
SF-268	31.11	69.57	100.75	81.95	106.88	51.18
SF-295	ND	ND	ND	ND	ND	ND
SF-539	55.67	111.58	168	137.05	145.43	134.21
SNB-19	21.66	49.65	72.96	73.57	78.16	47.23
SNB-75	16.49	117.84	119.61	108.99	117.51	121.25
U251	ND	ND	ND	ND	ND	ND
Melanoma						
LOX IMVI	32.34	93.19	97.18	85.62	98.81	181.82
MALME-3M	NA	11.16	83.31	91.54	91.63	79.18
M14	24.46	48.37	35.93	105.11	119.61	75.43
MDA-MB-435	NA	NA	NA	133.36	153.14	40.16
SK-MEL-2	63.99	136.8	147.98	147.49	174.84	186.72
SK-MEL-28	44.09	60.78	74.74	82.79	97.35	54
SK-MEL-5	40.44	89.09	78.2	146.76	161.03	77.92
UACC-257	75.85	71.08	113.44	115.55	114.58	148.33
UACC-62	56.03	91.69	114.09	97.2	125.23	73.51
Ovarian Cancer						
IGROV1	13.08	38.82	83.78	76.28	83.85	57.24

OVCAR-3	NA	20.72	59.09	142.18	138.48	83.32
OVCAR-4	28.54	79.11	77.72	64.08	84.78	97.96
OVCAR-5	NA	17.4	33.91	37.04	48.4	26.88
OVCAR-8	29.4	66.02	85.43	75.89	90.84	159.26
NCI/ADR-RES	14.25	67.53	79.26	157.2	171.88	162.29
SK-OV-3	47.55	99.75	156.54	102.84	111.51	110.87
Renal Cancer						
786-0	32.16	67.96	95.02	95.86	113.38	125.63
A498	37.62	66.09	95.11	82.21	91.91	121.22
ACHN	26.75	64.79	82.02	56.4	75.27	80.54
CAKI-1	44.71	77.4	174.47	74.55	89.56	128.29
RXF 393	ND	ND	ND	ND	ND	ND
SN12C	19.72	39.11	70.76	58.96	72.02	67.84
TK-10	45.53	97.58	116.1	73.19	96.89	81.48
UO-31	ND	ND	ND	ND	ND	ND
Prostate Cancer						
PC-3	NA	68.34	36.07	87.79	97.99	95.79
DU-145	NA	81.29	42.38	74.84	78.21	52.76
Breast Cancer						
MCF7	NA	78.2	94.19	97.69	113.78	84.28
HS578T	NA	58.77	80.75	56.33	76.44	45
BT-549	NA	110.67	125.79	161.57	163.23	148.78
T-47D	NA	63.33	102.69	104.71	115.38	101.87
MDA-MB-468	ND	ND	ND	ND	ND	ND

NA: not applicable where GI% =<10%, ND: not determined

Table 2: GI % for *in vitro* subpanel tumor cell lines at 10 μ M concentration for compounds **12a-g**.

Subpanel	Compounds.						
	12a	12b	12c	12d	12e	12f	12g
Leukemia							
CCRF-CEM	18.16	NA	NA	55.25	16.62	NA	NA
HL-60(TB)	23.49	NA	11.61	34.96	11.4	16.23	NA
K-562	19.76	17.6	21.17	36.56	48.85	15.14	NA
MOLT-4	32.37	24.46	21.38	68.25	28.34	33.76	NA
RPMI-8226	94.94	24.72	24.39	45.98	76.4	76.38	NA
SR	29.82	20.87	ND	54.42	45.72	ND	15.29
Non-Small Cell Lung Cancer							
A549/ATCC	NA	18.62	NA	24.62	38.4	NA	NA
EKVX	NA	NA	12.05	NA	10.7	30.46	NA
HOP-62	NA	NA	NA	NA	NA	10.26	NA
HOP-92	NA	NA	NA	12.79	NA	24.15	NA
NCI-H226	NA	NA	30.3	NA	13.54	47.05	NA
NCI-H23	NA	11.6	NA	NA	NA	44.86	10.82
NCI-H322M	NA	NA	NA	NA	NA	NA	NA
NCI-H460	NA	NA	NA	NA	NA	NA	NA
NCI-H522	11.92	16.87	12.26	38.74	21.25	25.44	35.06
Colon Cancer							
COLO 205	NA	NA	NA	NA	NA	NA	NA
HCC-2998	NA	NA	NA	NA	NA	NA	NA

HCT-116	65.39	25.73	19.04	45.1	112.16	62.74	13.33
HCT-15	21.31	NA	29.47	26.79	32.18	36.17	NA
HT29	NA	NA	NA	30.83	34.11	NA	12.39
KM12	16.62	NA	NA	NA	41.71	NA	NA
SW-620	NA	NA	NA	NA	62.3	NA	NA
CNS Cancer							
SF-268	14.8	11.7	NA	NA	24.78	10.28	NA
SF-295	NA	NA	18.03	NA	NA	84.72	NA
SF-539	NA	NA	12.17	NA	15.28	55.09	NA
SNB-19	12.52	NA	12.76	12.43	19.82	59.89	17.91
SNB-75	14.54	21.32	NA	NA	31.54	57.41	NA
U251	NA	13.97	NA	20.87	47.72	34.96	14.17
Melanoma							
LOX IMVI	12.65	36.65	29.97	29.43	63.42	43.93	15.03
MALME-3M	NA	NA	NA	NA	NA	14.08	NA
M14	NA	NA	NA	NA	NA	NA	NA
MDA-MB-435	14.73	NA	NA	7.64	33.61	12.93	NA
SK-MEL-2	NA	NA	NA	23.63	NA	NA	17.85
SK-MEL-28	NA	NA	NA	NA	NA	NA	NA
SK-MEL-5	10.38	NA	NA	NA	NA	10.89	NA
UACC-257	NA	NA	NA	11.34	NA	NA	NA
UACC-62	30.57	ND	26.55	ND	ND	54.61	ND
Ovarian Cancer							
IGROV1	NA	NA	NA	NA	NA	NA	NA
OVCAR-3	12.62	NA	NA	13.26	29.23	NA	NA
OVCAR-4	NA	NA	NA	NA	NA	NA	NA
OVCAR-5	NA	NA	NA	NA	NA	NA	NA
OVCAR-8	10.13	10.19	NA	36.87	19.17	18.98	NA
NCI/ADR-RES	15.92	NA	NA	12.17	17.15	19.68	NA
SK-OV-3	NA	NA	NA	NA	NA	15.15	13.48
Renal Cancer							
786-0	NA	NA	NA	NA	10.55	37.32	NA
A498	NA	NA	NA	NA	NA	NA	NA
ACHN	NA	NA	NA	NA	NA	NA	NA
CAKI-1	20.21	11.47	NA	NA	22.69	14.18	NA
RXF 393	NA	NA	NA	NA	NA	104.52	NA
SN12C	10.76	NA	NA	14.74	36.31	23.27	10.99
TK-10	NA	NA	NA	NA	NA	NA	NA
UO-31	39.58	29.67	31.21	22.37	32.5	38.09	13.91
Prostate Cancer							
PC-3	21.97	NA	21.22	23.32	30.68	15.09	NA
DU-145	13.73	NA	NA	NA	20.8	NA	NA
Breast Cancer							
MCF7	61.29	29.58	50.63	43.8	93.56	76.93	NA
HS578T	NA	18.48	NA	NA	19.48	52.27	14.7
BT-549	NA	NA	NA	NA	12.78	22.25	16.98
T-47D	NA	NA	NA	NA	NA	24.99	NA
MDA-MB-468	NA	12.34	21.25	26.54	21.02	22	NA

NA: not applicable where GI% =<10%, ND: not determined

Table 3: GI % for *in vitro* subpanel tumor cell lines at 10 μ M concentration for compounds **12h-i**, and **13a-e**.

Subpanel	Compounds.						
	12h	12i	13a	13b	13c	13d	13e
Leukemia							
CCRF-CEM	30.32	78.17	NA	15.09	26.2	40.57	NA
HL-60(TB)	23.15	NA	NA	14.19	10.34	37.93	NA
K-562	25.23	36.59	NA	16.75	15.36	28.26	NA
MOLT-4	29.99	67.15	14.53	33.96	26.59	45.17	NA
RPMI-8226	52.29	38.18	70.03	20.45	25.14	59.52	35.57
SR	27.6	73.81	26.85	12.81	27.03	49.53	15.79
Non-Small Cell Lung Cancer							
A549/ATCC	12.36	NA	27.2	NA	NA	NA	26.23
EKVX	NA	NA	NA	NA	NA	NA	NA
HOP-62	NA	NA	NA	NA	NA	NA	NA
HOP-92	NA	NA	16.37	13.15	13.72	20.22	NA
NCI-H226	11.32	NA	NA	NA	NA	NA	NA
NCI-H23	NA	NA	18.23	NA	NA	NA	20.93
NCI-H322M	NA	NA	NA	NA	NA	NA	NA
NCI-H460	1.95	NA	NA	NA	NA	NA	NA
NCI-H522	12.09	18.74	36.36	16.71	NA	11.07	30.06
Colon Cancer							
COLO 205	NA	NA	NA	NA	NA	NA	NA
HCC-2998	NA	NA	NA	NA	NA	NA	NA
HCT-116	37.03	23.31	72.66	28.79	11.88	30.63	46.82
HCT-15	19.51	68.52	12.11	18.99	28.16	32.8	NA
HT29	NA	NA	10.25	NA	NA	NA	10.28
KM12	12.82	NA	NA	NA	NA	NA	NA
SW-620	NA	23.23	NA	NA	NA	NA	NA
CNS Cancer							
SF-268	17.17	NA	16.02	11.62	18.36	16.12	NA
SF-295	NA	NA	NA	15.8	NA	NA	NA
SF-539	NA	NA	17.74	NA	NA	NA	NA
SNB-19	NA	NA	19.44	NA	10.2	12.93	NA
SNB-75	11.27	NA	16.5	30.91	NA	16.09	NA
U251	14.19	NA	32.68	NA	NA	10.24	14.98
Melanoma							
LOX IMVI	16.48	169.52	48.81	NA	NA	10.43	32.94
MALME-3M	NA	NA	NA	NA	NA	NA	NA
M14	NA	22.84	NA	14.41	NA	NA	NA
MDA-MB-435	NA	10.6	NA	13.33	NA	10.33	NA
SK-MEL-2	NA	NA	14.95	10.33	NA	NA	NA
SK-MEL-28	NA	NA	NA	NA	NA	NA	NA
SK-MEL-5	NA	NA	NA	14.11	21.37	NA	NA
UACC-257	NA	NA	NA	4.01	NA	NA	6.94
UACC-62	34.64	27.17	ND	33.73	32.76	23.42	ND
Ovarian Cancer							
IGROV1	NA	35.08	NA	NA	NA	NA	NA
OVCAR-3	NA	NA	NA	NA	NA	NA	NA

OVCAR-4	NA	NA	NA	NA	NA	NA	NA
OVCAR-5	NA	NA	NA	NA	NA	NA	NA
OVCAR-8	14.55	NA	NA	NA	NA	39.2	11.87
NCI/ADR-RES	11.88	NA	15.76	16.54	16.92	11.49	10.09
SK-OV-3	NA	NA	NA	NA	NA	NA	NA
Renal Cancer							
786-0	NA	NA	NA	NA	11.66	NA	NA
A498	NA	NA	NA	NA	NA	NA	NA
ACHN	NA	NA	NA	NA	NA	10.75	NA
CAKI-1	15.04	NA	NA	26.09	14.27	NA	NA
RXF 393	NA	NA	NA	19.36	10.22	12.3	NA
SN12C	11.82	10.92	20.71	NA	NA	NA	15.23
TK-10	NA	NA	NA	NA	NA	NA	NA
UO-31	39.46	23.7	15.28	35.63	24.43	25.71	19.52
Prostate Cancer							
PC-3	18.83	15.57	19.89	25.45	20.58	14.25	14.23
DU-145	NA	NA	NA	NA	NA	11.09	NA
Breast Cancer							
MCF7	51.24	41.43	54.3	55.3	27.89	38.19	61.37
HS578T	16.27	NA	29.15	15.9	11.51	19.29	15.54
BT-549	NA	NA	26.18	NA	NA	NA	NA
T-47D	NA	14.51	NA	22.67	19.88	NA	NA
MDA-MB-468	NA	12.63	NA	20.4	32.54	28.43	NA

NA: not applicable where GI% =<10%, ND: not determined

Table 4: GI % for *in vitro* subpanel tumor cell lines at 10 μ M concentration for compounds **13f-i** and **14a-c**.

Subpanel	Compounds.						
	13f	13g	13h	13i	14a	14b	14c
Leukemia							
CCRF-CEM	20.01	15.71	22.96	22.38	18.02	NA	10.36
HL-60(TB)	NA	10.05	18.68	NA	NA	NA	NA
K-562	13.63	16.51	25.37	NA	10.84	NA	NA
MOLT-4	32.65	27.53	34.37	28	34.25	NA	24.51
RPMI-8226	80.11	63.66	46.58	16.3	57.97	NA	NA
SR	ND	ND	35.55	33.28	31.27	17.39	38.22
Non-Small Cell Lung Cancer							
A549/ATCC	NA	NA	25.89	15.48	24.91	NA	20.61
EKVX	NA	28.86	10.57	NA	NA	NA	NA
NCI-H226	23.95	36.57	NA	NA	NA	NA	NA
NCI-H23	NA	19.18	21.58	NA	NA	NA	NA
NCI-H522	15.73	16.18	13.39	20.57	25.93	NA	34.21
Colon Cancer							
HCT-116	35.42	70.11	44.81	NA	71.48	NA	NA
HCT-15	15.5	26.48	21.16	15.4	NA	NA	NA
HT29	NA	NA	NA	NA	11.22	NA	NA
KM12	12.82	NA	11.53	NA	NA	NA	NA
CNS Cancer							

SF-268	12.49	NA	NA	NA	NA	NA	NA
SF-295	NA	25.19	NA	NA	NA	NA	NA
SF-539	11.08	11.79	NA	NA	NA	NA	NA
SNB-19	15.13	16.43	11.23	NA	NA	NA	NA
SNB-75	21.49	18.21	NA	NA	NA	NA	NA
U251	14.87	16.16	20.9	14.12	11.18	NA	NA
Melanoma							
LOX IMVI	29.41	46.09	22.45	107.63	NA	NA	NA
SK-MEL-2	NA	NA	10.35	NA	12.69	NA	19.09
UACC-62	35.98	41.45	33.16	ND	ND	24.74	ND
Ovarian Cancer							
IGROV1	12.74	19.2	NA	37.84	NA	NA	NA
OVCAR-5	NA	NA	NA	NA	NA	-16.12	NA
OVCAR-8	NA	NA	28.97	NA	NA	NA	NA
NCI/ADR-RES	18.48	NA	NA	NA	NA	NA	NA
Renal Cancer							
CAKI-1	NA	14.33	16.73	NA	NA	NA	NA
RXF 393	NA	32.68	NA	NA	NA	NA	NA
SN12C	NA	16.33	NA	NA	12.8	NA	NA
UO-31	46.53	39.66	48.37	20.48	20.47	31.37	14.29
Prostate Cancer							
PC-3	20.91	21.56	21.75	NA	12.3	NA	NA
Breast Cancer							
MCF7	48.32	65.37	63.56	23.78	36.41	24.48	11.53
HS578T	13.54	27.74	15.11	NA	NA	NA	NA
T-47D	NA	NA	16.5	NA	NA	NA	NA
MDA-MB-468	20.85	23.83	12.49	10.08	NA	18.15	NA

NA: not applicable where GI% =<10%, ND: not determined

Table 5: GI % for *in vitro* subpanel tumor cell lines at 10 μ M concentration for compounds **14d-i**.

Subpanel	Compounds.					
	14d	14e	14f	14g	14h	14i
Leukemia						
CCRF-CEM	29.03	22.45	NA	20.93	11.58	NA
HL-60(TB)	24.86	NA	NA	NA	NA	NA
K-562	17.53	21.04	NA	NA	NA	NA
MOLT-4	44.85	29.34	13.61	NA	19.01	18.5
RPMI-8226	52.98	81.37	75.09	40.44	36.98	NA
SR	ND	32.7	ND	ND	24.21	23.43
Non-Small Cell Lung Cancer						
A549/ATCC	NA	NA	NA	NA	NA	NA
EKVX	16.44	16.74	NA	NA	NA	NA
NCI-H226	NA	NA	NA	13.37	NA	NA
NCI-H522	13.95	17.68	12.41	NA	NA	15.75
Colon Cancer						
HCT-116	31.78	36.83	19.53	10.8	21.46	16.68
HCT-15	28.51	15.29	NA	NA	12.07	NA
KM12	NA	NA	NA	NA	6.76	NA

CNS Cancer						
SF-295	12.11	NA	18.69	NA	NA	NA
SF-539	NA	13.04	NA	NA	NA	NA
SNB-19	NA	13.09	11.91	NA	NA	NA
SNB-75	11.08	NA	20.56	NA	NA	NA
U251	NA	14.24	NA	NA	NA	NA
Melanoma						
LOX IMVI	11.68	17.4	NA	NA	NA	NA
MDA-MB-435	NA	10.25	NA	NA	11.74	NA
SK-MEL-2	NA	NA	NA	NA	NA	14.65
SK-MEL-5	13.83	14.77	NA	NA	NA	NA
UACC-62	25.81	32.35	27.8	17.73	23.89	ND
Ovarian Cancer						
OVCAR-4	NA	10.53	NA	NA	NA	NA
Renal Cancer						
786-0	NA	11.7	NA	NA	NA	NA
CAKI-1	NA	12.2	NA	NA	NA	NA
RXF 393	28	NA	NA	NA	NA	NA
UO-31	17.39	30.19	35.16	30.07	30.86	12.15
Prostate Cancer						
PC-3	13.79	18.08	16.6	10.14	NA	10.93
Breast Cancer						
MCF7	47.75	49.99	37.48	10.1	36.81	17.98
HS578T	NA	22.3	NA	NA	NA	NA
T-47D	NA	11.85	NA	NA	NA	NA
MDA-MB-468	31.27	32.49	19.05	NA	NA	NA

NA: not applicable where GI% =<10%, ND: not determined

Table 6: National Cancer Institute *in vitro* five dose evaluation data (μ M) of compound **10b** compared to reference drug Gefitinib.

Subpanel	10b			Gefitinib (NSC: 715055)		
	GI ₅₀	TGI	LC ₅₀	GI ₅₀	TGI	LC ₅₀
Leukemia						
CCRF-CEM	12.4	>100.0	>100.0	4.56	19.86	57.94
HL-60(TB)	7.62	26.8	84.2	5.55	16.87	44.87
K-562	7.47	>100.0	>100.0	2.28	7.18	22.70
MOLT-4	10.6	30.4	87	3.92	16.83	41.02
RPMI-8226	2.0	8.5	32	1.73	10.23	38.73
SR	13.4	40.9	100	3.22	6.44	18.58
Non-Small Cell Lung Cancer						
A549/ATCC	5.34	21.6	67.4	7.60	21.78	46.67
EKVX	2.42	14.8	51.2	0.04	17.30	51.76
HOP-62	3.78	12.6	40.7	10.21	35.89	73.28
HOP-92	1.71	5.03	19.1	7.46	23.33	49.09
NCI-H226	5.34	19.8	49.6	15.49	33.04	70.31
NCI-H23	3.36	15.5	52.4	16.83	46.45	95.06
NCI-H322M	14.6	53.9	>100.0	0.09	17.06	59.16
NCI-H460	2.66	12.6	39.2	6.65	19.86	45.92

NCI-H522	5.49	18.4	44.6	6.78	38.73	87.10
Colon Cancer						
COLO 205	10.4	35.4	>100.0	6.43	20.94	52.84
HCC-2998	3.67	>100.0	>100.0	10.84	53.58	73.11
HCT-116	6.24	32.3	>100.0	7.19	23.01	68.71
HCT-15	7.84	>100.0	>100.0	5.22	18.75	49.20
HT29	9.07	33.8	>100.0	4.04	41.59	64.71
KM12	6.84	29.6	>100.0	8.09	32.73	81.10
SW-620	5.52	37.2	>100.0	8.00	29.51	73.11
CNS Cancer						
SF-268	8.24	21.8	49.9	7.18	33.04	75.34
SF-295	8.78	22.1	51.3	2.02	5.15	16.03
SF-539	6.99	22.5	59.8	10.91	22.86	47.97
SNB-19	12.6	27.3	59	13.12	25.82	50.82
SNB-75	1.82	6.07	25.4	5.68	20.99	50.58
U251	3.7	13.5	37.1	10.96	23.71	48.64
Melanoma						
LOX IMVI	3.21	13.4	38.5	8.87	24.55	59.57
MALME-3M	2.15	4.34	8.76	3.08	8.57	19.23
M14	11.3	40.3	>100.0	5.56	13.71	39.54
MDA-MB-435	12.0	72.1	>100.0	3.17	11.67	34.91
SK-MEL-2	2.63	6.31	21.2	13.15	27.93	59.29
SK-MEL-28	7.68	21.7	53.8	0.30	3.05	7.69
SK-MEL-5	3.04	12.7	45	3.66	14.76	38.37
UACC-257	2.88	8.96	48.5	6.90	15.28	41.02
UACC-62	4.72	17	43.9	5.58	10.67	20.42
Ovarian Cancer						
IGROV1	7.62	24.5	66.8	0.19	9.48	49.20
OVCAR-3	9.25	25.6	67.1	4.82	23.77	76.74
OVCAR-4	1.92	5.9	24	8.79	26.61	68.87
OVCAR-5	15.8	60.3	>100.0	11.14	25.94	60.39
OVCAR-8	4.52	17.3	46.3	10.84	36.90	98.40
NCI/ADR-RES	3.67	17.6	62.3	13.30	65.16	>100
SK-OV-3	8.13	20.9	47.3	0.61	10.96	35.89
Renal Cancer						
786-0	9.52	21.9	48.9	8.61	23.77	55.34
A498	5.95	17.5	42.5	0.39	9.40	31.99
ACHN	12.4	28.2	64.1	0.22	12.16	34.83
CAKI-1	3.82	14.1	38	0.18	9.27	33.19
RXF 393	2.32	5.89	20.4	4.76	21.83	60.67
SN12C	5.95	22.3	68.5	6.17	22.18	55.08
TK-10	8.94	21.5	47.7	0.11	14.83	43.85
UO-31	13.0	29.1	65.1	1.26	15.67	41.69
Prostate Cancer						
PC-3	3.58	14.3	39.9	0.85	20.18	51.05
DU-145	7.62	21	49.6	2.57	25.18	92.68

Breast Cancer						
MCF7	4.43	34.8	>100.0	10.67	23.12	50.00
MDA-MB-231/ATCC	5.11	19.3	52.8	13.24	26.49	52.84
HS 578T	2.76	11.5	39.3	9.31	34.20	78.70
BT-549	2.59	12.3	46.2	8.18	21.28	47.75
T-47D	2.90	14.6	>100.0	6.00	21.93	56.36
MDA-MB-468	2.33	8.61	46	0.01	10.96	>100
MIDa	6.39	21.93	47.55	6.08	22.25	52.59

ND: not determined.
 Bold figures indicate superior potency.

Table 7: *In vitro* (GI₅₀ and TGI, μ M) and selectivity index of the compounds **10b** on nine subpanel tumor cell lines compared to Gefitinib

Subpanel	10b				Gefitinib (NSC: 715055)			
	GI ₅₀		TGI		GI ₅₀		TGI	
	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI
I	8.91	0.72	26.65	0.82	3.54	1.72	12.9	1.72
II	4.96	1.29	19.35	1.13	7.9	0.77	28.16	0.79
III	7.08	0.90	33.66	0.65	7.11	0.86	31.44	0.71
IV	7.02	0.91	18.86	1.16	8.3	0.73	21.92	1.02
V	5.51	1.16	21.86	1.00	5.58	1.09	14.46	1.54
VI	7.26	0.88	24.50	0.90	7.09	0.86	28.46	0.78
VII	7.73	0.83	20.06	1.09	2.71	2.24	16.13	1.38
VIII	5.60	1.14	17.65	1.24	1.71	3.56	22.68	0.98
IX	3.35	1.91	16.85	1.30	7.9	0.77	22.99	0.97
MIDa	6.39		21.93		6.08		22.25	

I: Leukemia, **II:** Non-Small Cell Lung Cancer, **III:** Colon Cancer, **IV:** CNS Cancer, **V:** Melanoma, **VI:** Ovarian Cancer, **VII:** Renal Cancer, **VIII:** Prostate Cancer, **IX** Breast Cancer,

MIDa: the average sensitivity of all cell lines for the tested compound, **MID_b:** the average sensitivity of cell lines of a specific subpanel for the tested compound. **SI:** selectivity index

Table 8: National Cancer Institute *in vitro* five dose evaluation data (μ M) of compounds **11a**, **11b**, **11c** compared to Gefitinib.

Subpanel	11a			11b			11c			Gefitinib (NSC: 715055)		
	GI ₅₀	TGI	LC ₅₀	GI ₅₀	TGI	LC ₅₀	GI ₅₀	TGI	LC ₅₀	GI ₅₀	TGI	LC ₅₀
Leukemia												
CCRF-CEM	1.70	3.27	6.28	1.70	3.18	5.95	4.27	>100	>100	4.56	19.86	57.94
HL-60 (TB)	1.67	3.10	5.76	1.84	3.27	5.79	2.39	4.51	8.53	5.55	16.87	44.87
K-562	1.69	9.83	33.4	1.87	7.09	34.4	4.70	>100	>100	2.28	7.18	22.70
MOLT-4	1.41	2.79	5.5	1.43	2.78	5.4	2.25	4.22	7.92	3.92	16.83	41.02
RPMI-8226	1.92	3.49	6.34	1.36	2.72	5.41	2.15	3.7	6.35	1.73	10.23	38.73
SR	0.31	0.807	2.88	0.21	0.441	0.895	0.88	2.13	4.75	3.22	6.44	18.58

Non-Small Cell Lung Cancer												
A549/ATCC	10.0	89.5	>100	6.83	31	>100	7.59	>100	>100	7.60	21.78	46.67
EKVX	7.14	44.4	>100	6.96	28.8	>100	20.7	>100	>100	0.04	17.30	51.76
HOP-62	5.68	21.4	71.6	4.59	18.3	51.1	13.0	>100	>100	10.21	35.89	73.28
HOP-92	5.31	14	75.9	3.68	8.3	37	4.16	10.4	>100	7.46	23.33	49.09
NCI-H226	8.39	24.6	67.4	5.67	19.8	57.7	6.76	32.9	>100	15.49	33.04	70.31
NCI-H23	4.88	20.3	69.3	4.19	19.1	64.7	17.7	>100	>100	16.83	46.45	95.06
NCI-H322M	17.0	83.0	>100	13.4	40.7	>100	89.9	>100	>100	0.09	17.06	59.16
NCI-H460	3.25	10.9	35.5	3.01	11.4	34.5	4.55	>100	>100	6.65	19.86	45.92
NCI-H522	1.32	3.25	7.99	1.30	3.04	7.1	4.02	29.7	>100	6.78	38.73	87.10
Colon Cancer												
COLO 205	4.08	12.0	68.3	3.6	14.3	>100	62	>100	>100	6.43	20.94	52.84
HCC-2998	5.58	20.2	70.4	3.64	13.3	42.7	6.86	>100	>100	10.84	53.58	73.11
HCT-116	4.66	16.2	46.1	4.33	15.8	43.2	8.77	>100	>100	7.19	23.01	68.71
HCT-15	2.82	19.6	>100	4.68	23.6	90.9	14.0	>100	>100	5.22	18.75	49.20
HT29	3.62	12.6	>100	3.75	13.1	94.8	34.2	>100	>100	4.04	41.59	64.71
KM12	2.90	12.2	40.7	3.23	12.7	42.6	7.41	>100	>100	8.09	32.73	81.10
SW-620	5.51	20.4	63.7	4.99	19.8	71.4	>100	>100	>100	8.00	29.51	73.11
CNS Cancer												
SF-268	5.75	21	63.3	4.5	16.8	49.7	25.0	>100	>100	7.18	33.04	75.34
SF-295	3.34	9.52	>100	2.89	6.93	50.6	30.2	>100	>100	2.02	5.15	16.03
SF-539	3.32	9.51	33.6	3.00	7.30	25.6	3.11	8.65	>100	10.91	22.86	47.97
SNB-19	8.76	48.7	>100	7.7	31.6	>100	97.9	>100	>100	13.12	25.82	50.82
SNB-75	6.26	33	>100	5.59	21.7	60.8	4.08	>100	>100	5.68	20.99	50.58
U251	4.99	18	62	4.33	14.9	49	11.7	>100	>100	10.96	23.71	48.64
Melanoma												
LOX IMVI	5.4	17.1	42.5	4.39	15.4	40	9.58	>100	>100	8.87	24.55	59.57
MALME-3M	3.5	10.4	37.1	3.08	10.2	46.5	6.71	56	>100	3.08	8.57	19.23
M14	3.59	13.2	55.4	2.96	11.3	>100	12.0	>100	>100	5.56	13.71	39.54
MDA-MB-435	1.46	3.65	9.17	1.40	3.61	9.30	41.5	>100	>100	3.17	11.67	34.91
SK-MEL-2	1.93	4.55	12.2	1.78	3.94	8.7	1.82	4.52	>100	13.15	27.93	59.29
SK-MEL-28	7.23	51.2	>100	7.06	30.4	>100	38.9	>100	>100	0.30	3.05	7.69
SK-MEL-5	2.37	9.3	31.9	2.25	8.25	29.5	15.5	97.1	>100	3.66	14.76	38.37
UACC-257	5.89	18.5	47.4	3.95	15	49.7	6.88	>100	>100	6.90	15.28	41.02
UACC-62	2.59	10.8	33.4	2.11	8.58	33.8	18.1	>100	>100	5.58	10.67	20.42
Ovarian Cancer												
IGROV1	6.82	27.0	98.9	6.13	24.6	81.0	35.6	>100	>100	0.19	9.48	49.20
OVCAR-3	2.56	6.16	24.5	2.37	7.4	36.3	6.37	>100	>100	4.82	23.77	76.74
OVCAR-4	5.29	21.8	96.6	4.41	15.9	79.3	5.01	28.1	>100	8.79	26.61	68.87
OVCAR-5	15.7	77.3	>100	15.9	54.0	>100	>100	>100	>100	11.14	25.94	60.39
OVCAR-8	5.73	18.8	48.4	5.24	19.3	52.5	3.63	70.9	>100	10.84	36.90	98.40
NCI/ADR-RES	2.12	4.05	7.76	1.79	3.55	7.08	5.9	>100	>100	13.30	65.16	>100
SK-OV-3	3.18	14.0	66.3	3.84	16.4	53.3	21.2	>100	>100	0.61	10.96	35.89
Renal Cancer												
786-0	3.65	16.4	>100	4.22	17	58.1	7.39	>100	>100	8.61	23.77	55.34
A498	5.15	23.0	92.0	4.28	16.4	44.1	2.75	>100	>100	0.39	9.40	31.99
ACHN	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22	12.16	34.83
CAKI-1	5.3	19.9	57.8	4.81	17.7	53.6	5.93	18.1	43.7	0.18	9.27	33.19
RXF 393	2.58	6.22	28.8	2.64	6.36	25.7	2.09	4.05	7.86	4.76	21.83	60.67
SN12C	7.75	24.0	66.6	6.94	21.9	60.8	6.62	>100	>100	6.17	22.18	55.08

TK-10	11.9	42.4	>100	9.49	30.6	96.5	20.8	>100	>100	0.11	14.83	43.85
UO-31	7.82	48.9	>100	9.68	45.3	>100	42.0	>100	>100	1.26	15.67	41.69
Prostate Cancer												
PC-3	5.23	18.0	52.7	4.04	16.5	59.8	6.50	>100	>100	0.85	20.18	51.05
DU-145	4.60	20.1	97.4	4.26	17.2	54.1	5.51	>100	>100	2.57	25.18	92.68
Breast Cancer												
MCF7	3.11	13.9	48.2	3.54	14.8	55.6	23.1	>100	>100	10.67	23.12	50.00
MDA-MB-231/ATCC	8.40	60.8	>100	8.65	32.5	>100	48.9	>100	>100	13.24	26.49	52.84
HS 578T	2.48	5.65	25.2	2.18	5.18	19.0	14.8	82	>100	9.31	34.20	78.70
BT-549	3.23	13.1	36.8	2.69	8.15	30.1	13.3	36.3	99.1	8.18	21.28	47.75
T-47D	6.63	19.8	47.0	5.29	22.6	80.1	12.0	91.4	>100	6.00	21.93	56.36
MDA-MB-468	1.95	3.73	7.11	1.52	3.36	7.46	4.44	23.5	>100	0.01	10.96	>100
MIDa	4.88	20.90	57.70	4.36	15.8	42.29	16.4	32.0	NA	6.08	22.25	52.59

ND: not determined

Bold figures indicate superior potency.

Table 9: *In vitro* (GI₅₀ and TGI, μ M) and selectivity index of the compounds **11a**, **11b**, and **11c** on nine subpanel tumor cell lines compared to Gefitinib.

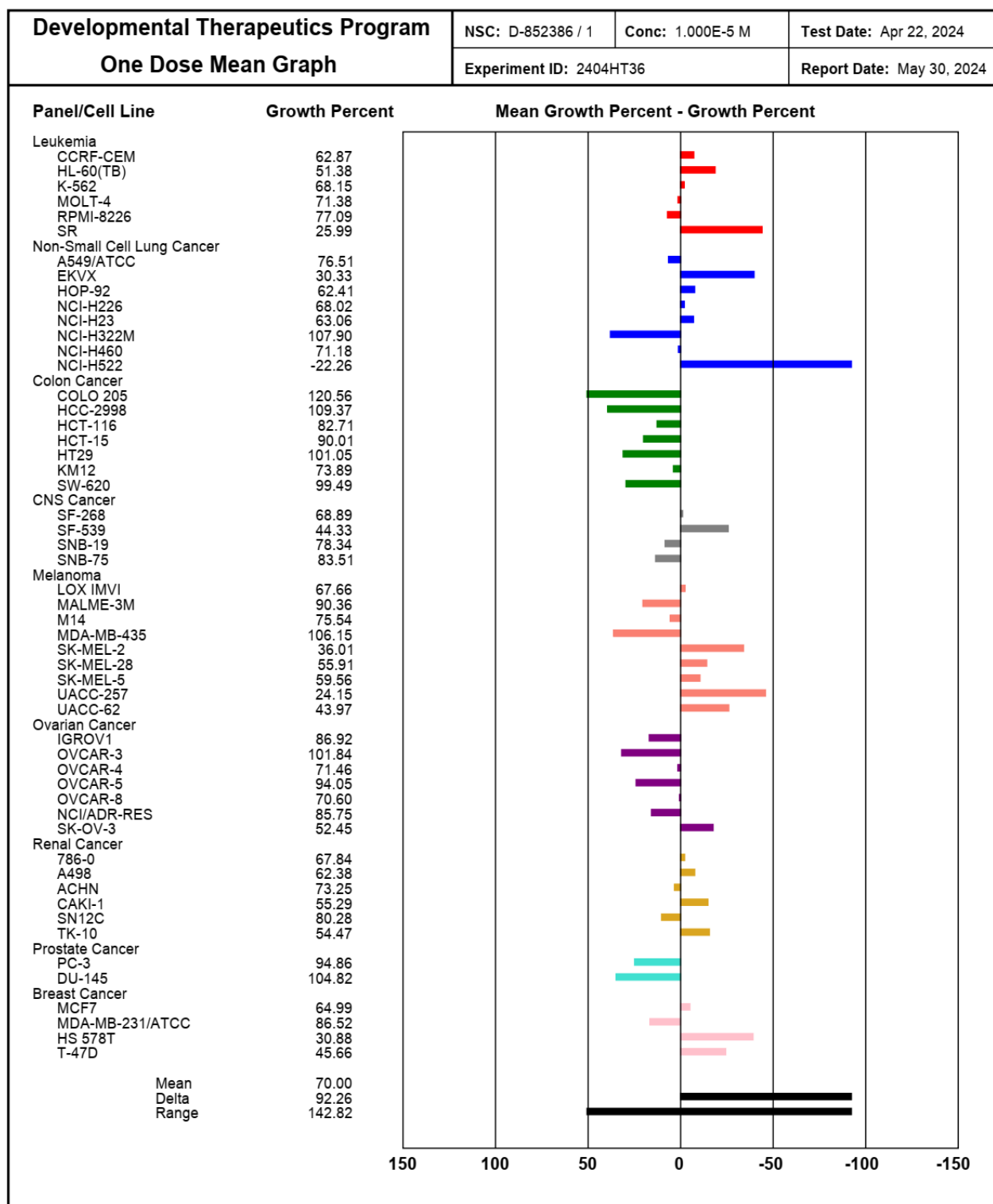
Sub-panels	11a				11b				11c				Gefitinib (NSC: 715055)			
	GI ₅₀		TGI		GI ₅₀		TGI		GI ₅₀		TGI		GI ₅₀		TGI	
	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI	MID _b	SI
I	1.45	3.37	3.88	5.39	1.4	3.11	3.24	4.88	2.77	5.92	3.64	8.79	3.54	1.72	12.9	1.72
II	6.99	0.70	34.59	0.60	5.51	0.79	20.04	0.79	18.7	0.88	24.33	1.32	7.9	0.77	28.16	0.79
III	4.16	1.17	16.17	1.29	4.03	1.08	16.08	0.98	22.2	0.74	NA	NA	7.11	0.86	31.44	0.71
IV	5.4	0.90	23.28	0.90	4.66	0.94	16.53	0.96	28.66	0.57	NA	NA	8.3	0.73	21.92	1.02
V	3.77	1.29	15.41	1.36	3.22	1.35	11.85	1.33	28.77	0.57	52.54	0.61	5.58	1.09	14.46	1.54
VI	5.91	0.83	24.15	0.87	5.66	0.77	20.16	0.78	12.95	1.27	49.5	0.65	7.09	0.86	28.46	0.78
VII	6.3	0.77	25.83	0.81	6	0.73	22.18	0.71	12.51	1.31	NA	NA	2.71	2.24	16.13	1.38
VIII	4.91	0.99	19.05	1.10	4.15	1.05	16.85	0.94	6.00	2.73	NA	NA	1.71	3.56	22.68	0.98
IX	4.3	1.13	19.49	1.07	3.97	1.10	14.43	1.09	19.42	0.84	58.3	0.55	7.9	0.77	22.99	0.97
MIDa	4.88		20.90		4.36		15.8		16.4		32.0		6.08		22.25	

I: Leukemia, **II:** Non-Small Cell Lung Cancer, **III:** Colon Cancer, **IV:** CNS Cancer, **V:** Melanoma,

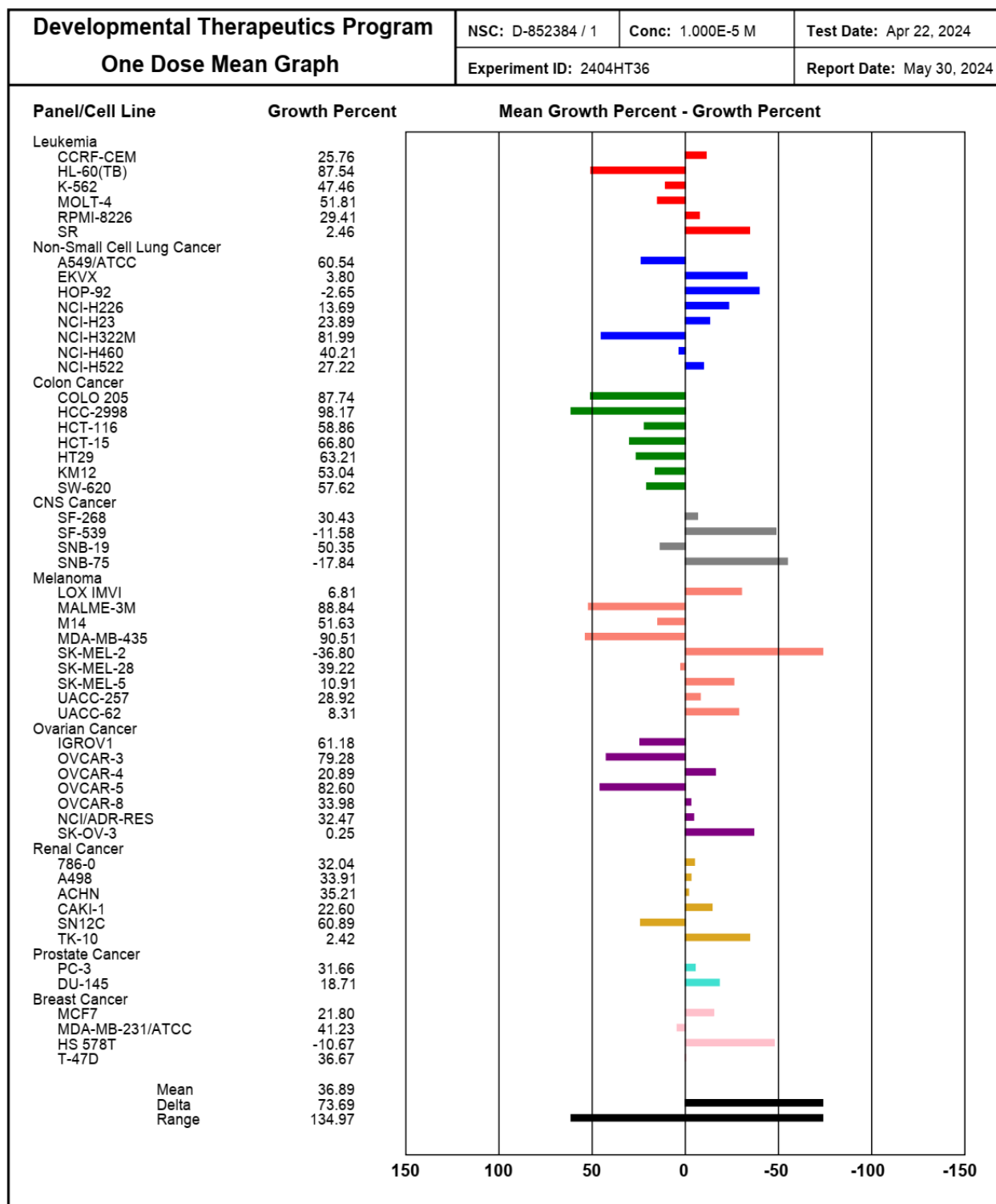
VI: Ovarian Cancer, **VII:** Renal Cancer, **VIII:** Prostate Cancer **IX** Breast Cancer,

MID_a: the average sensitivity of all cell lines for the tested compound,

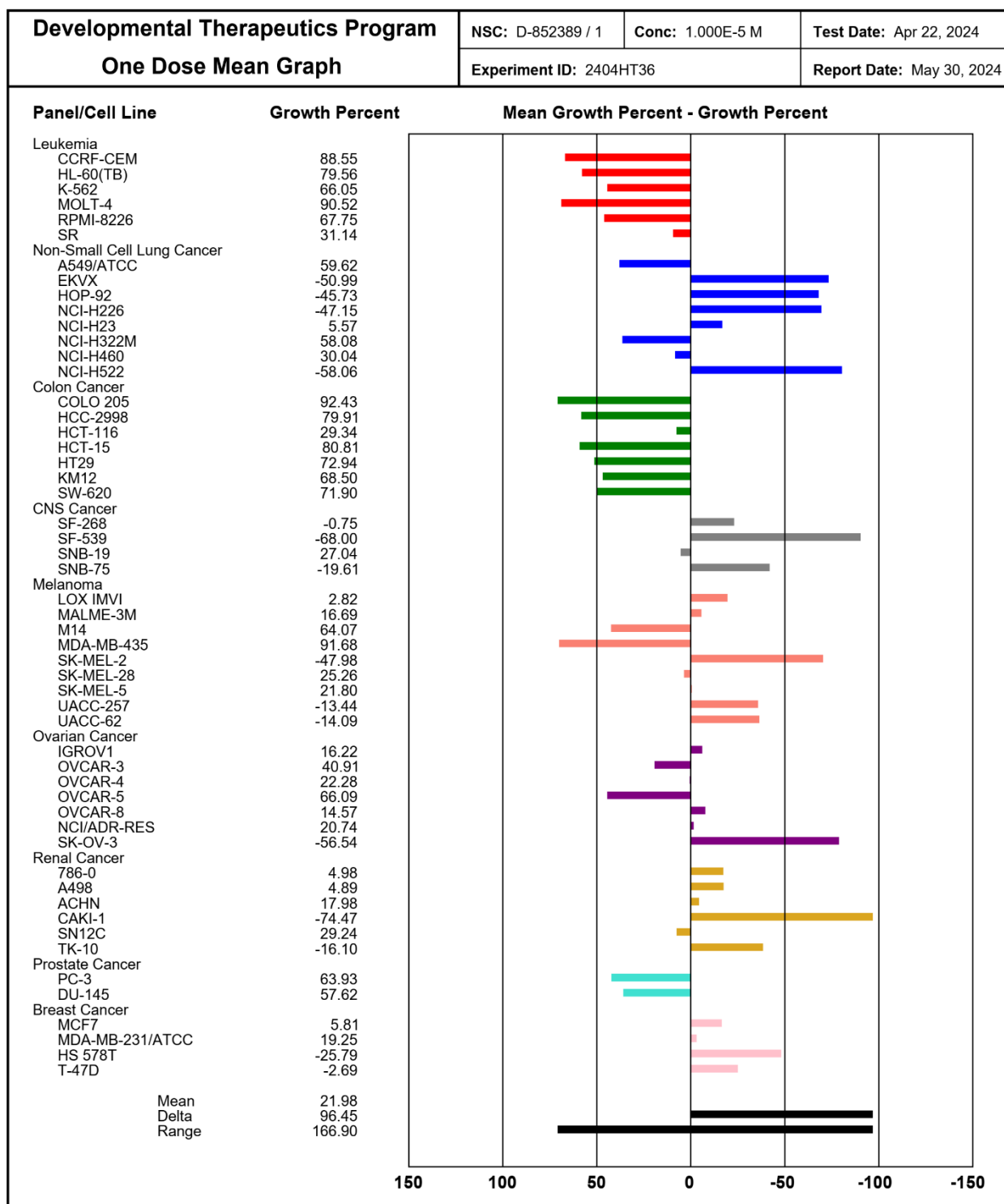
MID_b: the average sensitivity of cell lines of a specific subpanel for the tested compound. SI: selectivity index



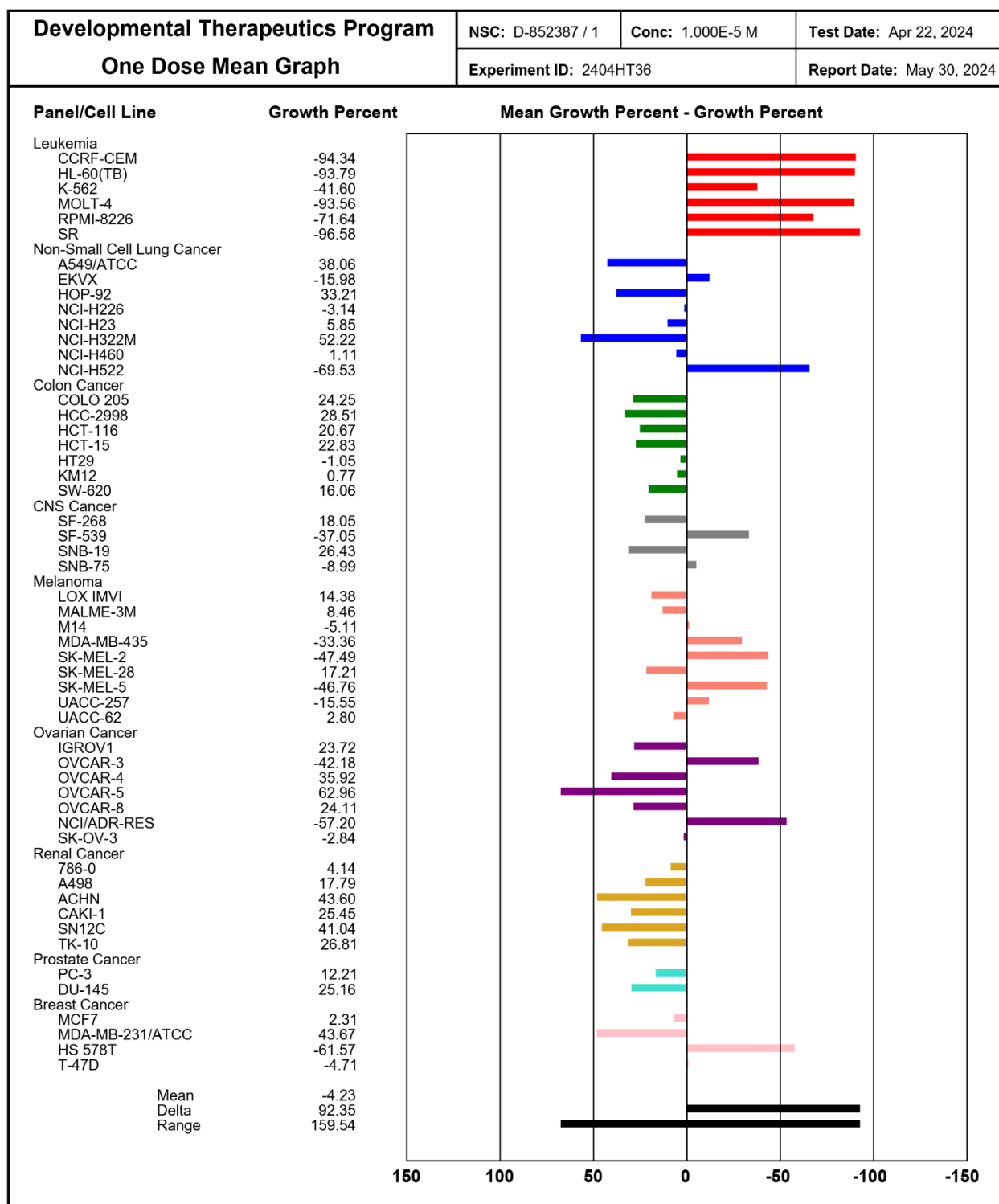
NCI screening results of compound **10a**



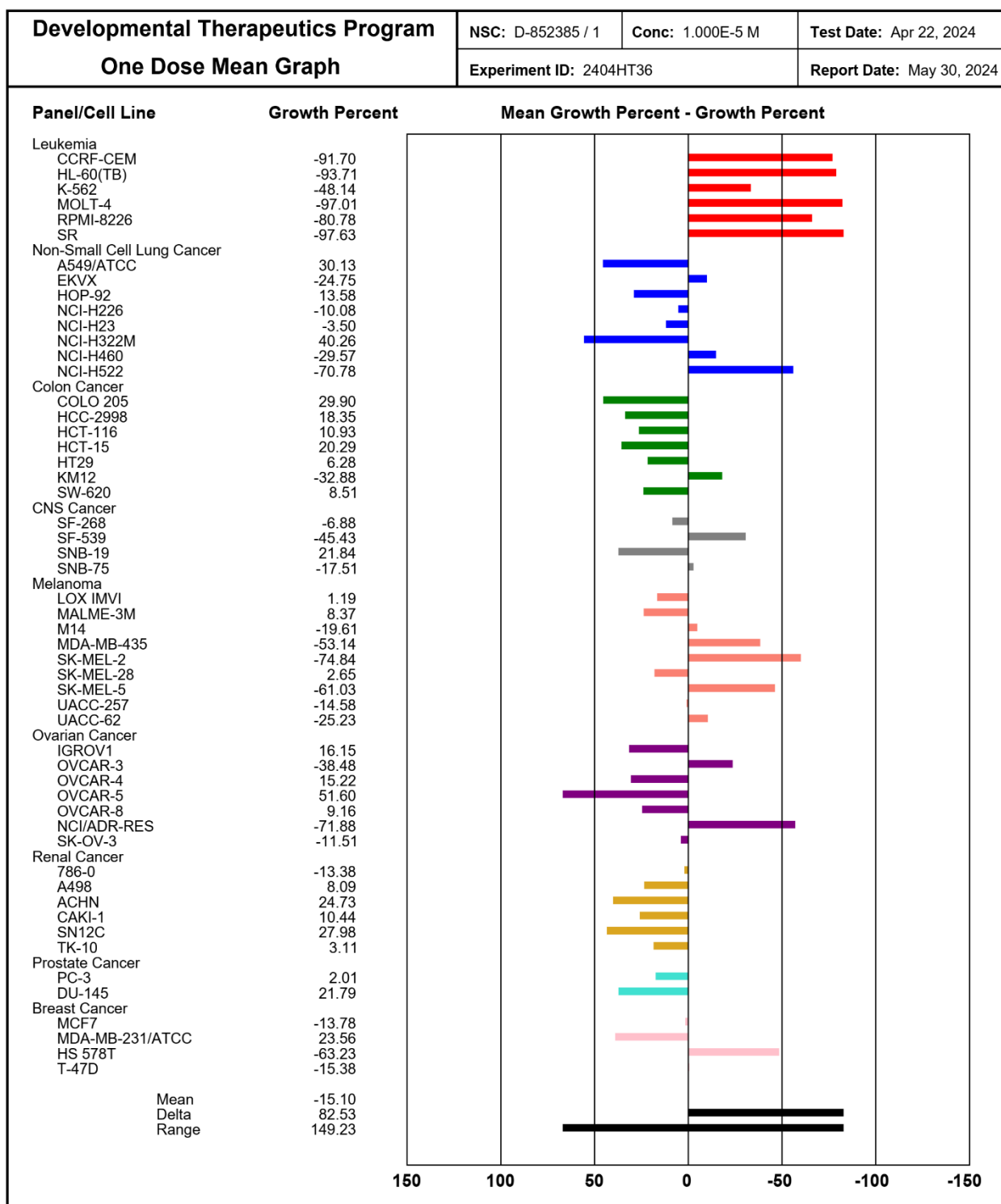
NCI screening results of compound **10b**



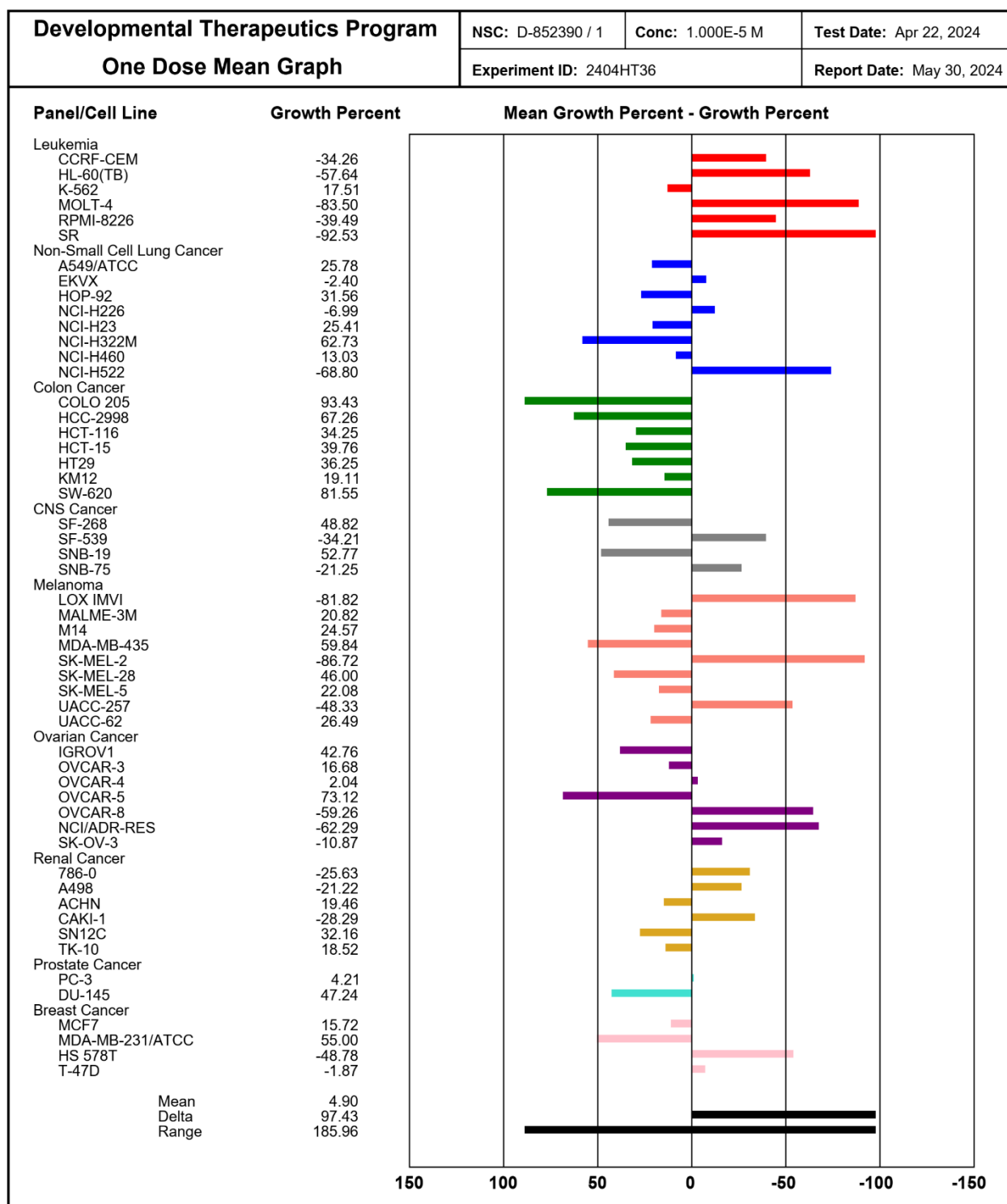
NCI screening results of compound **10c**



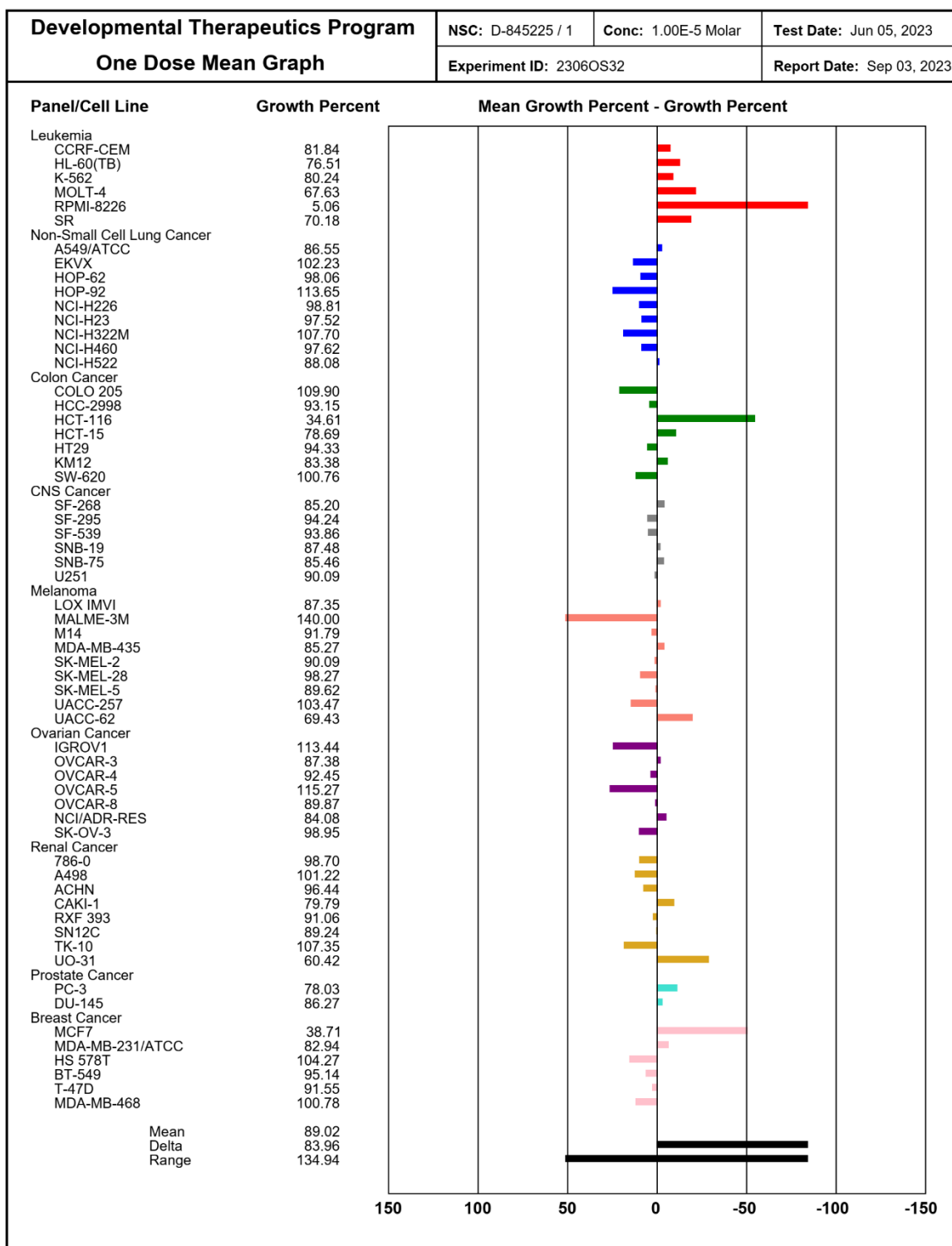
NCI screening results of compound **11a**



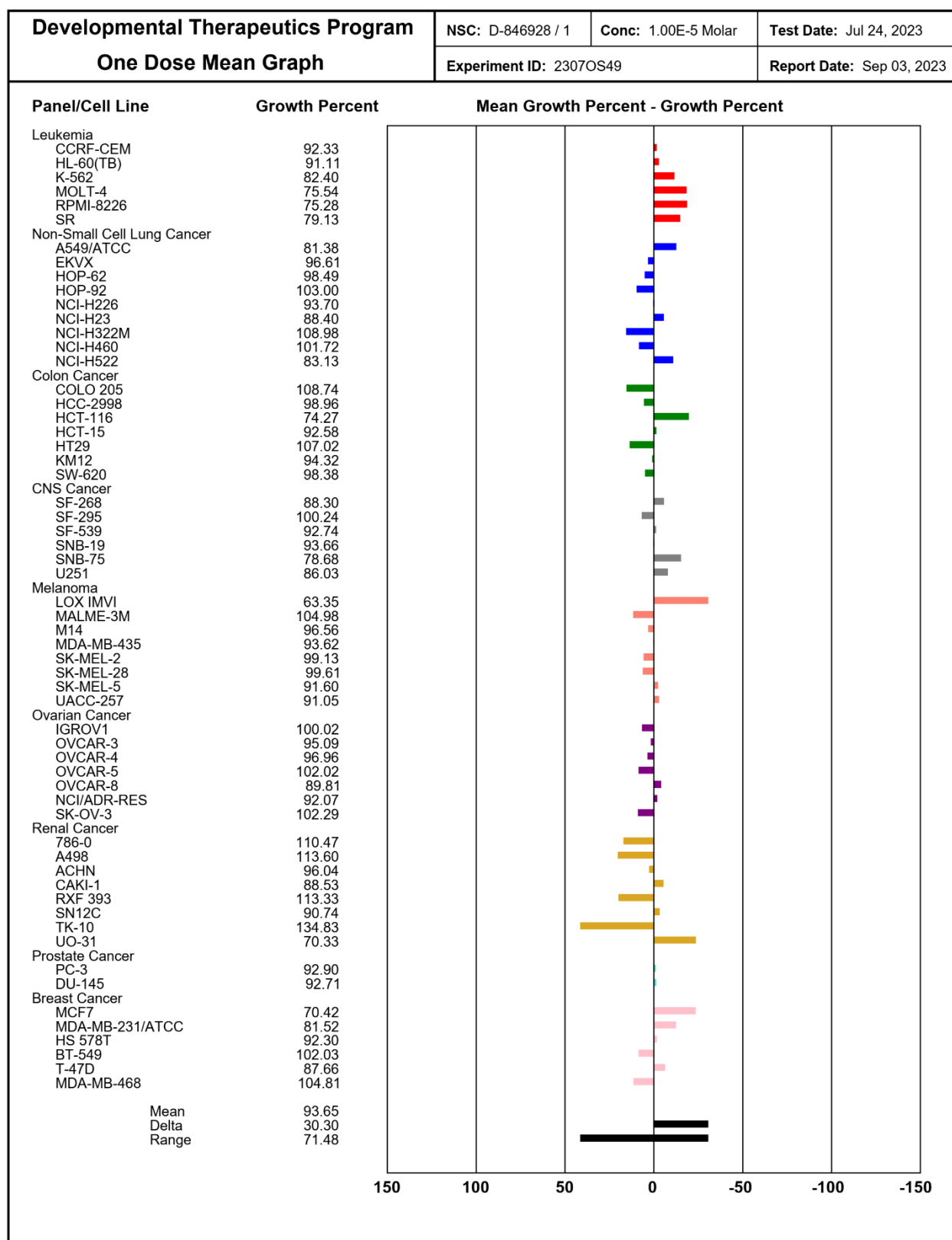
NCI screening results of compound **11b**



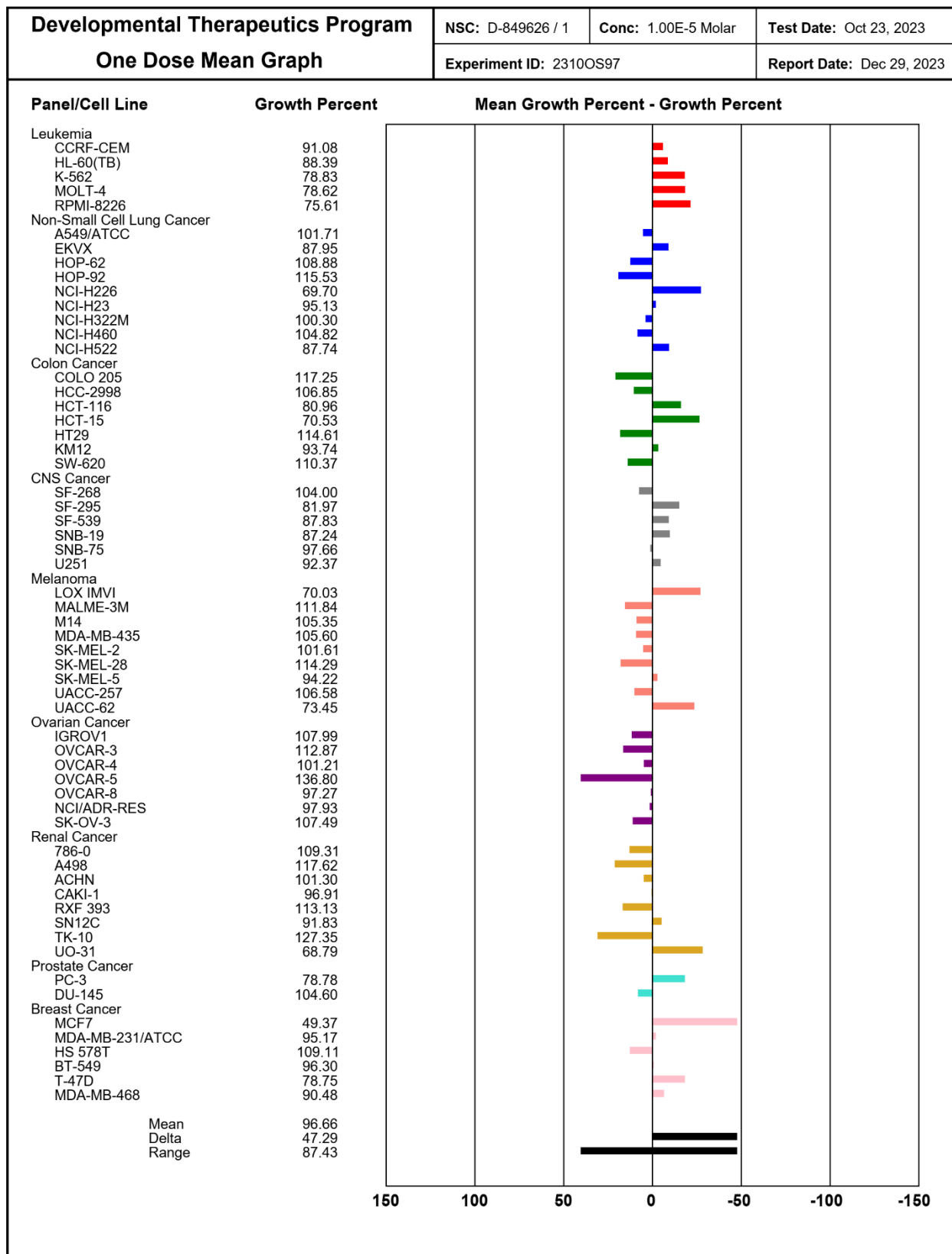
NCI screening results of compound **11c**



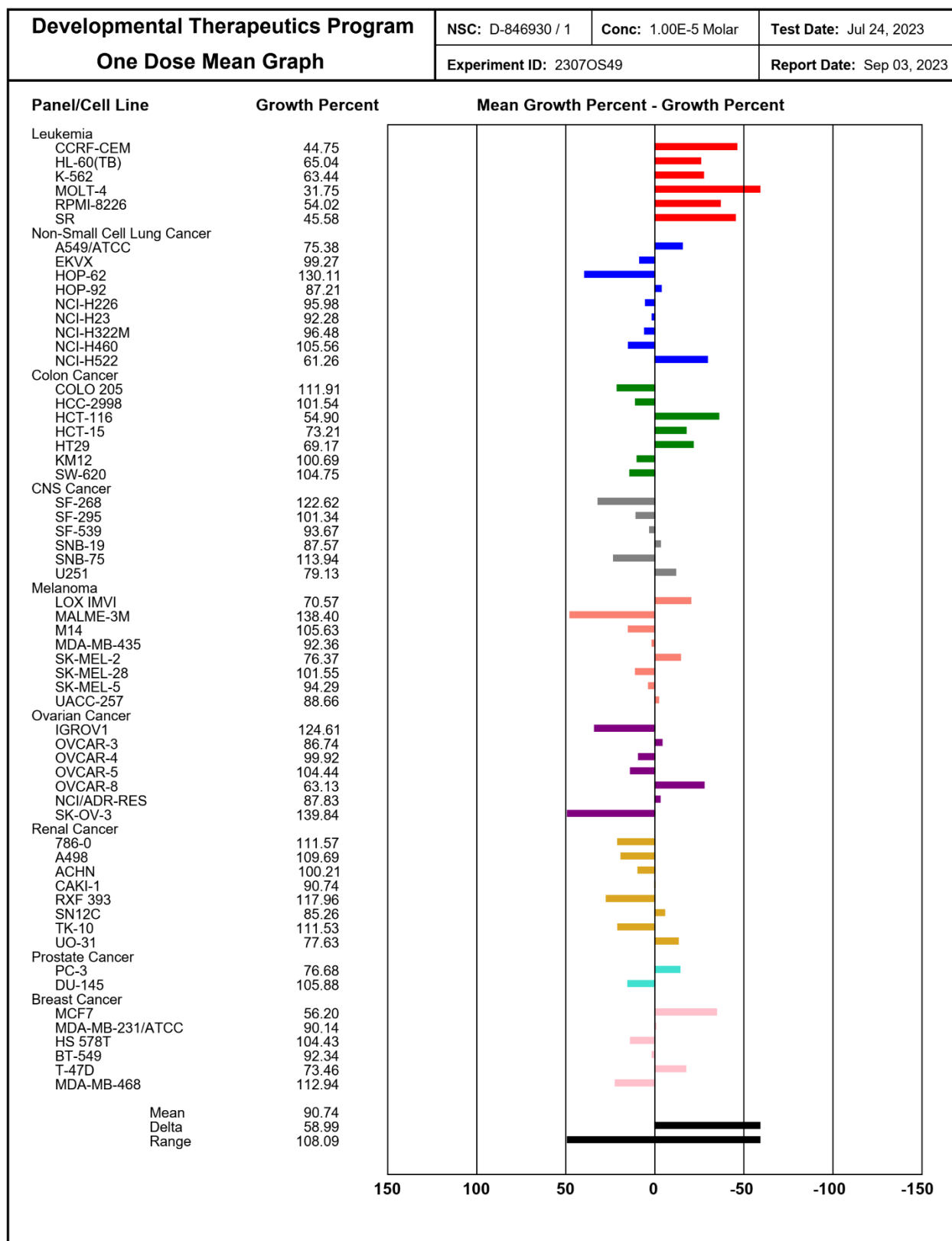
NCI screening results of compound **12a**



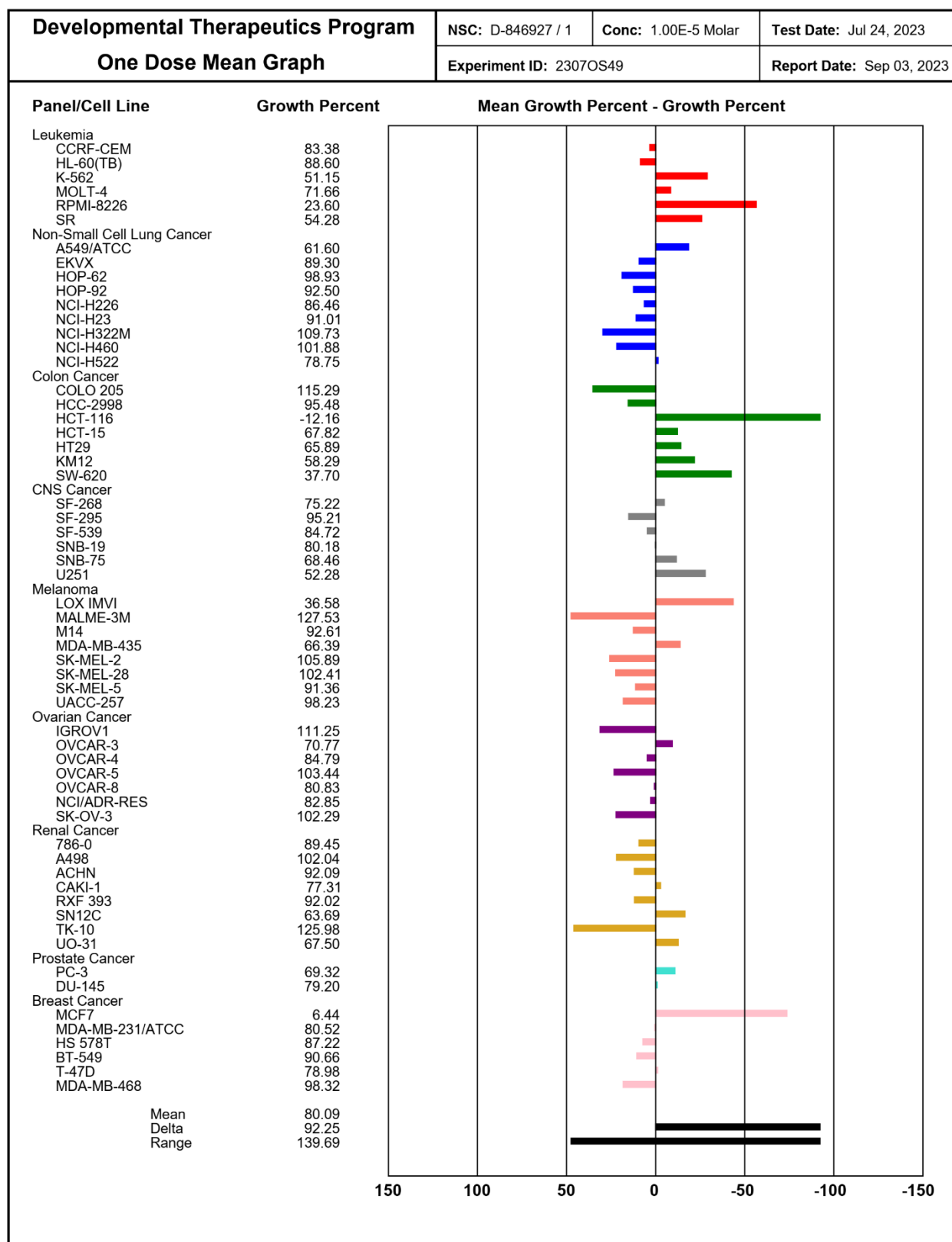
NCI screening results of compound **12b**



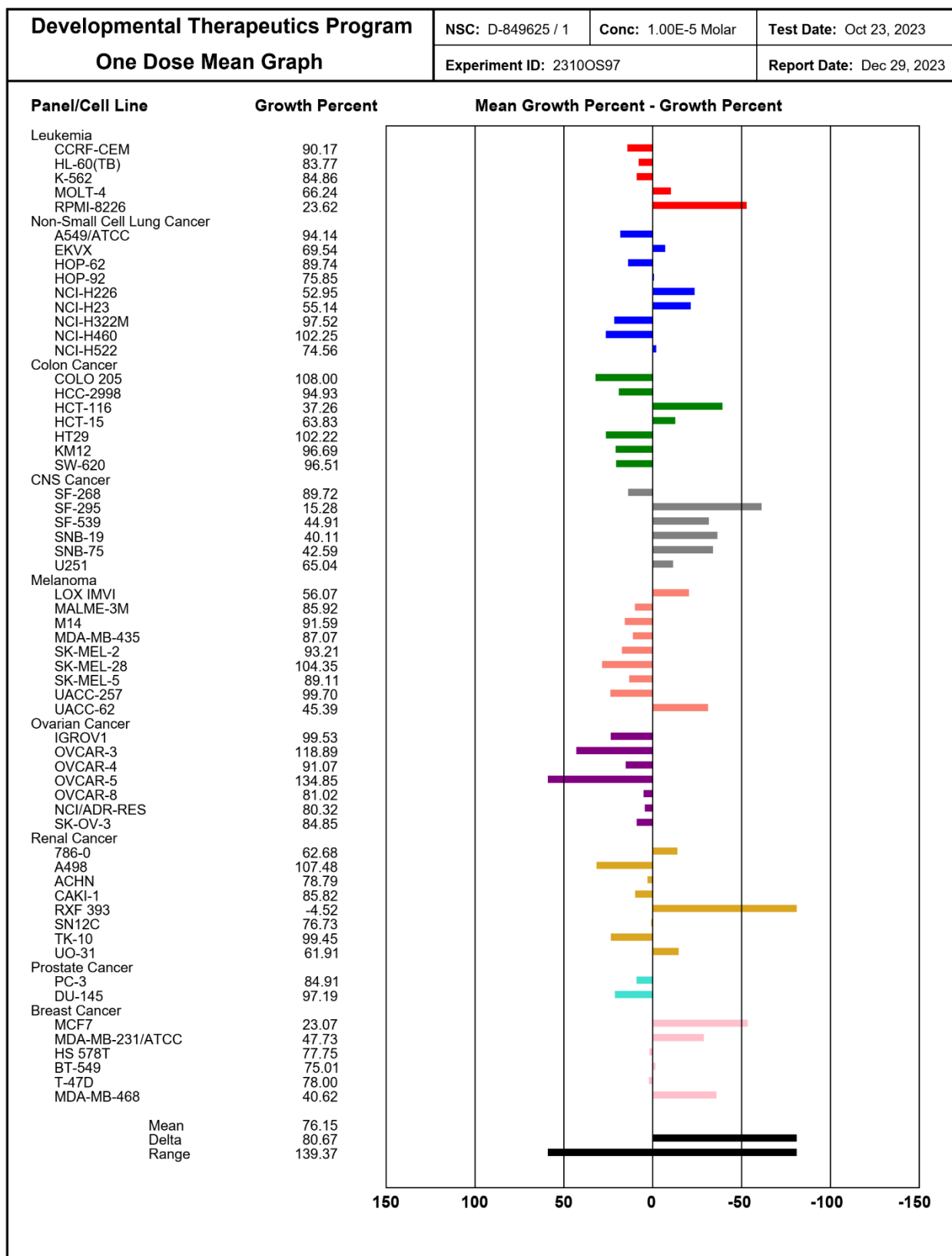
NCI screening results of compound 12c



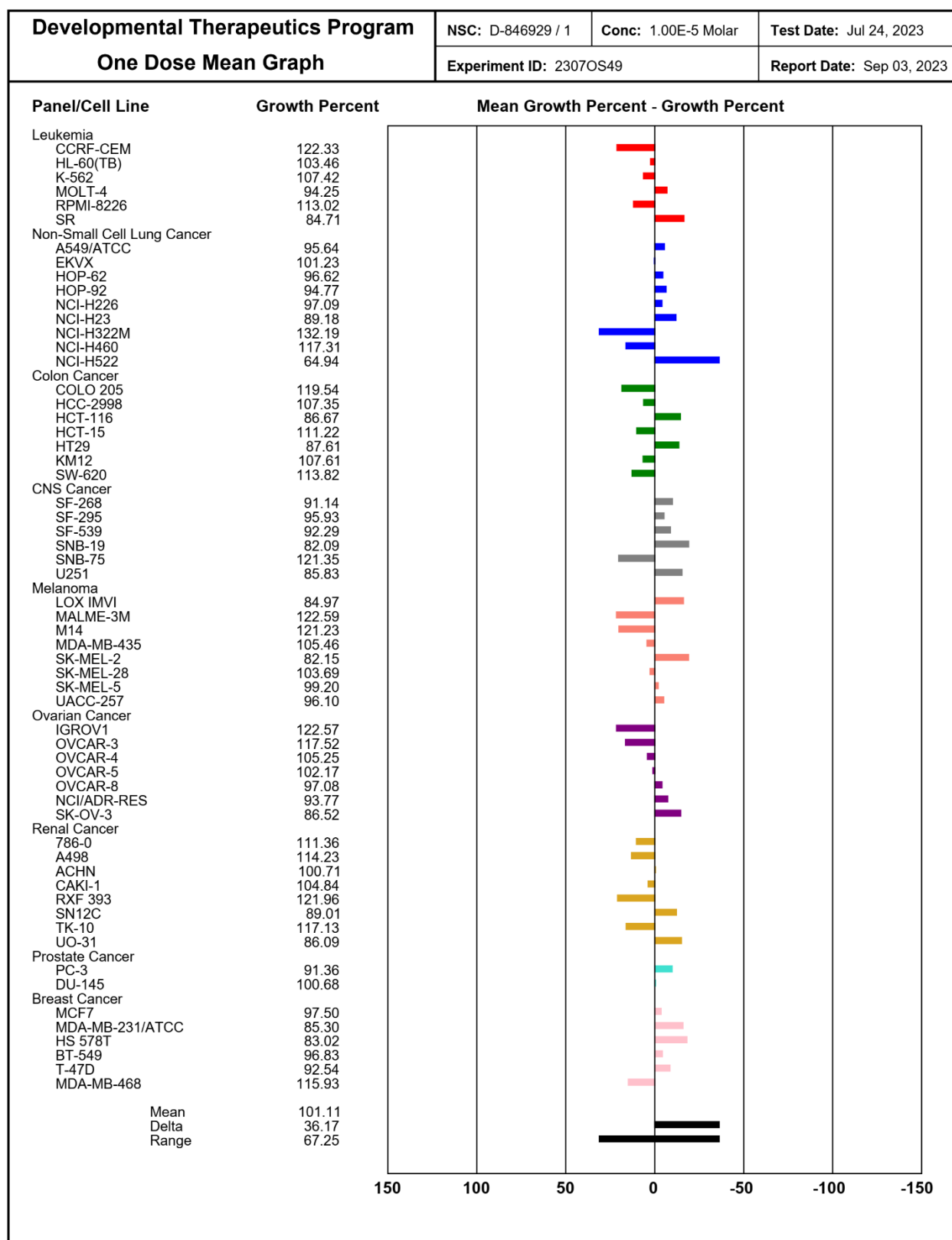
NCI screening results of compound **12d**



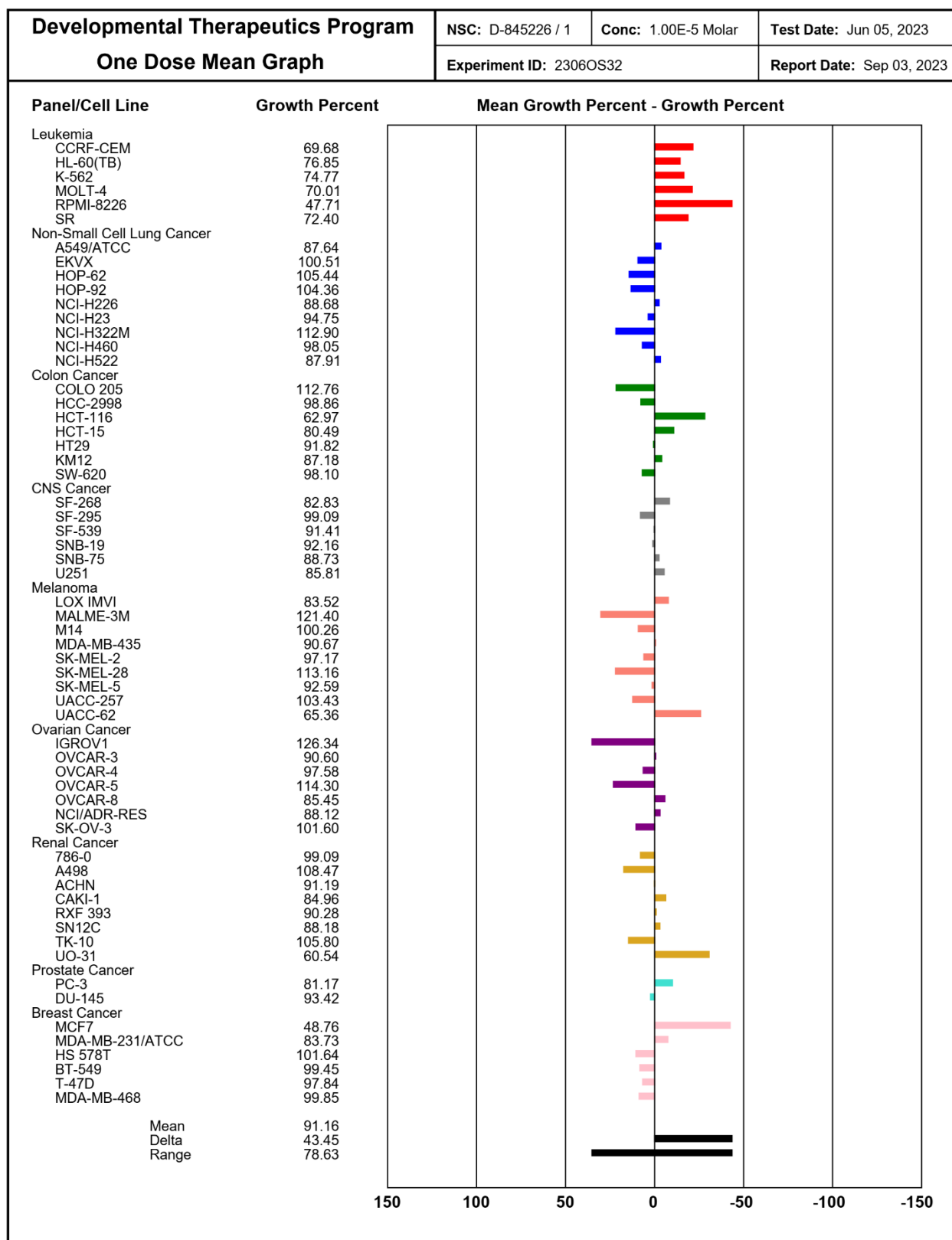
NCI screening results of compound **12e**



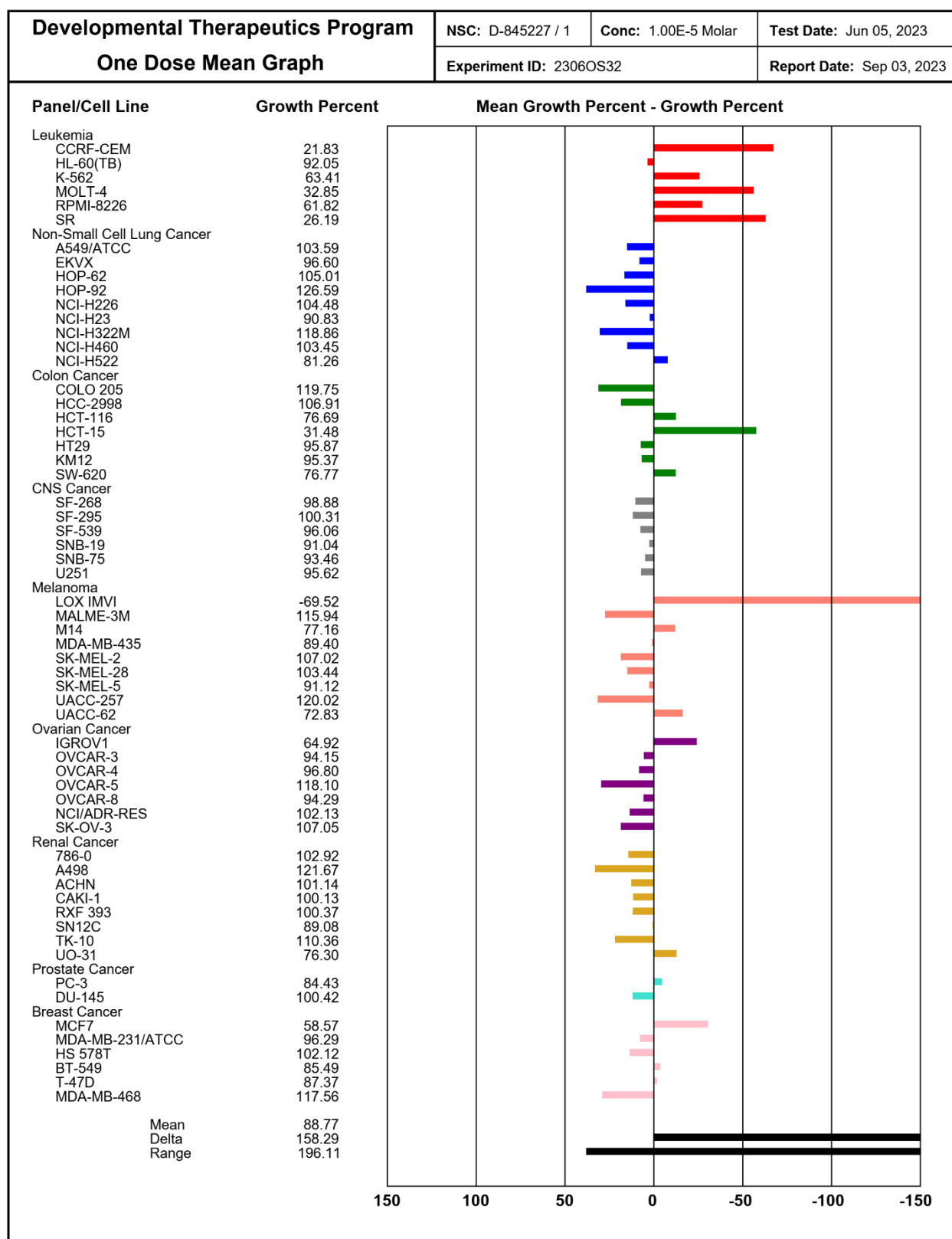
NCI screening results of compound 12f



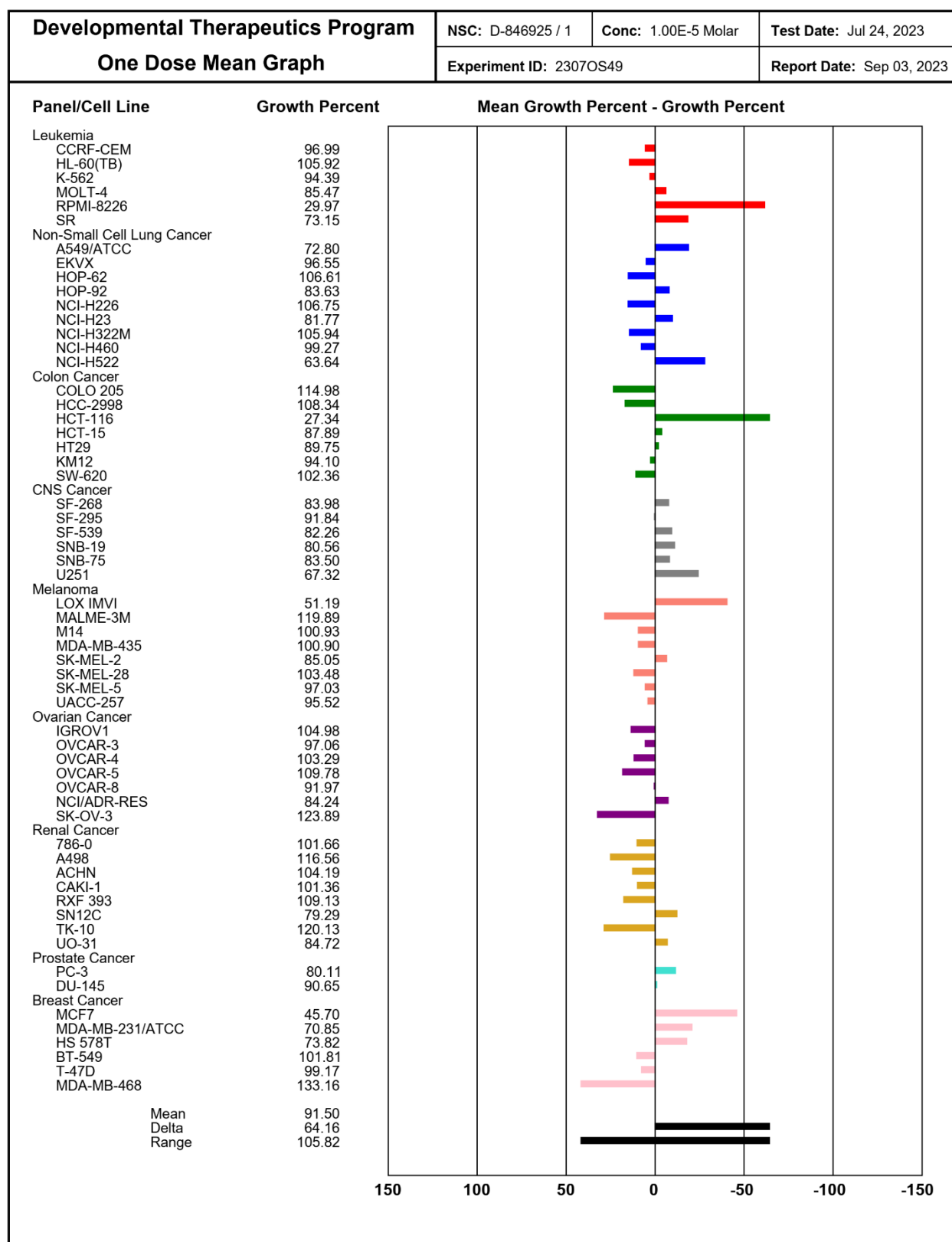
NCI screening results of compound **12g**



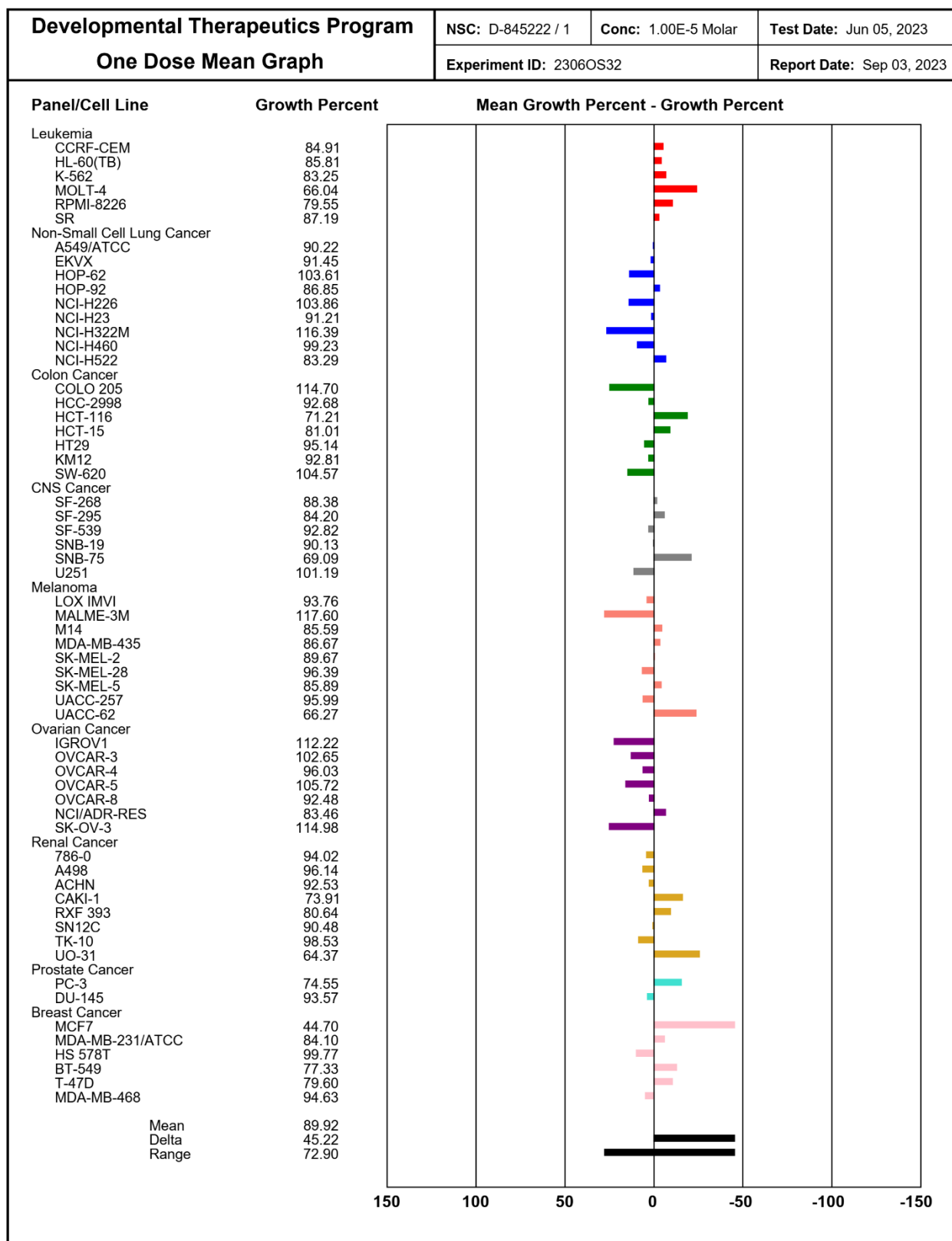
NCI screening results of compound **12h**



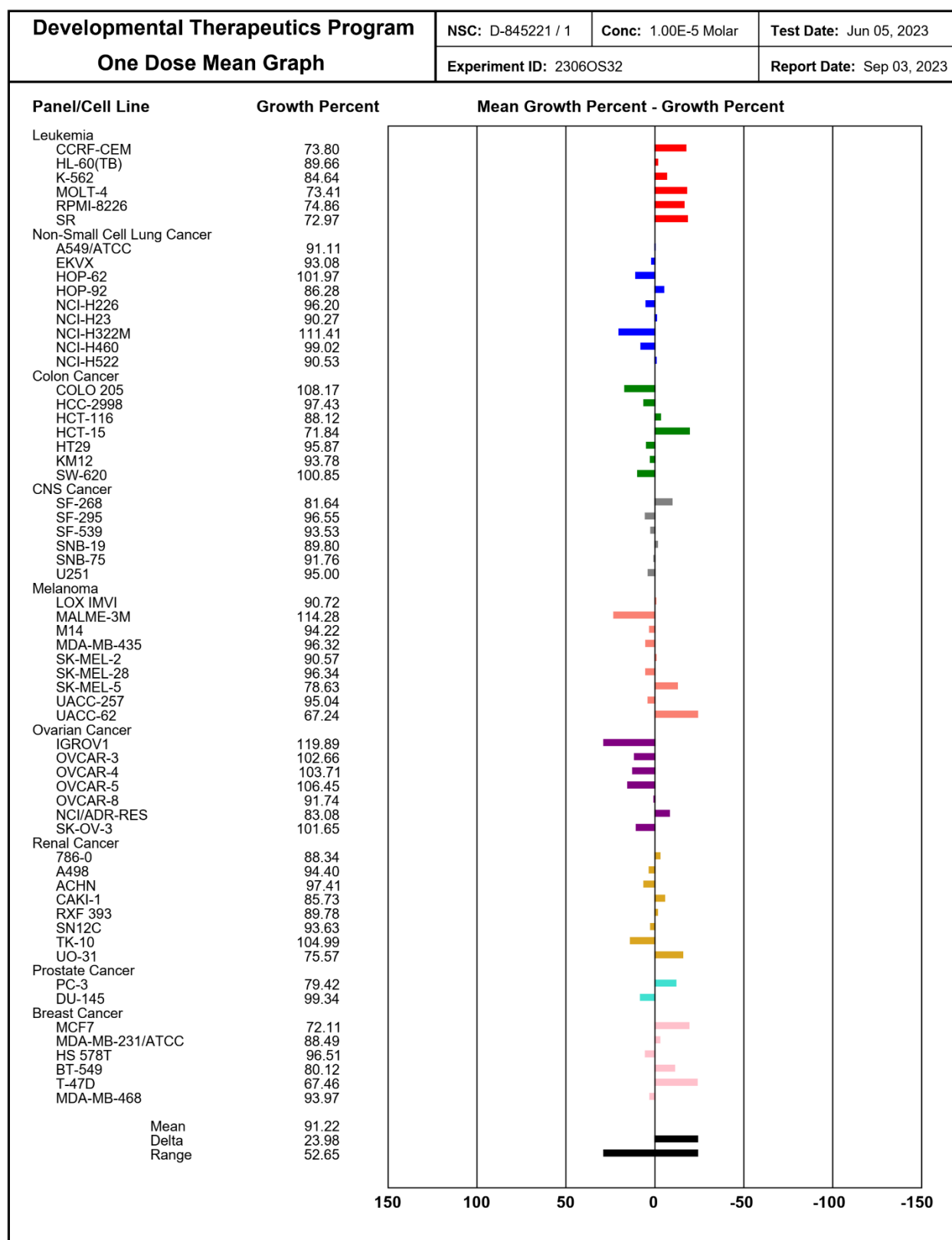
NCI screening results of compound **12i**



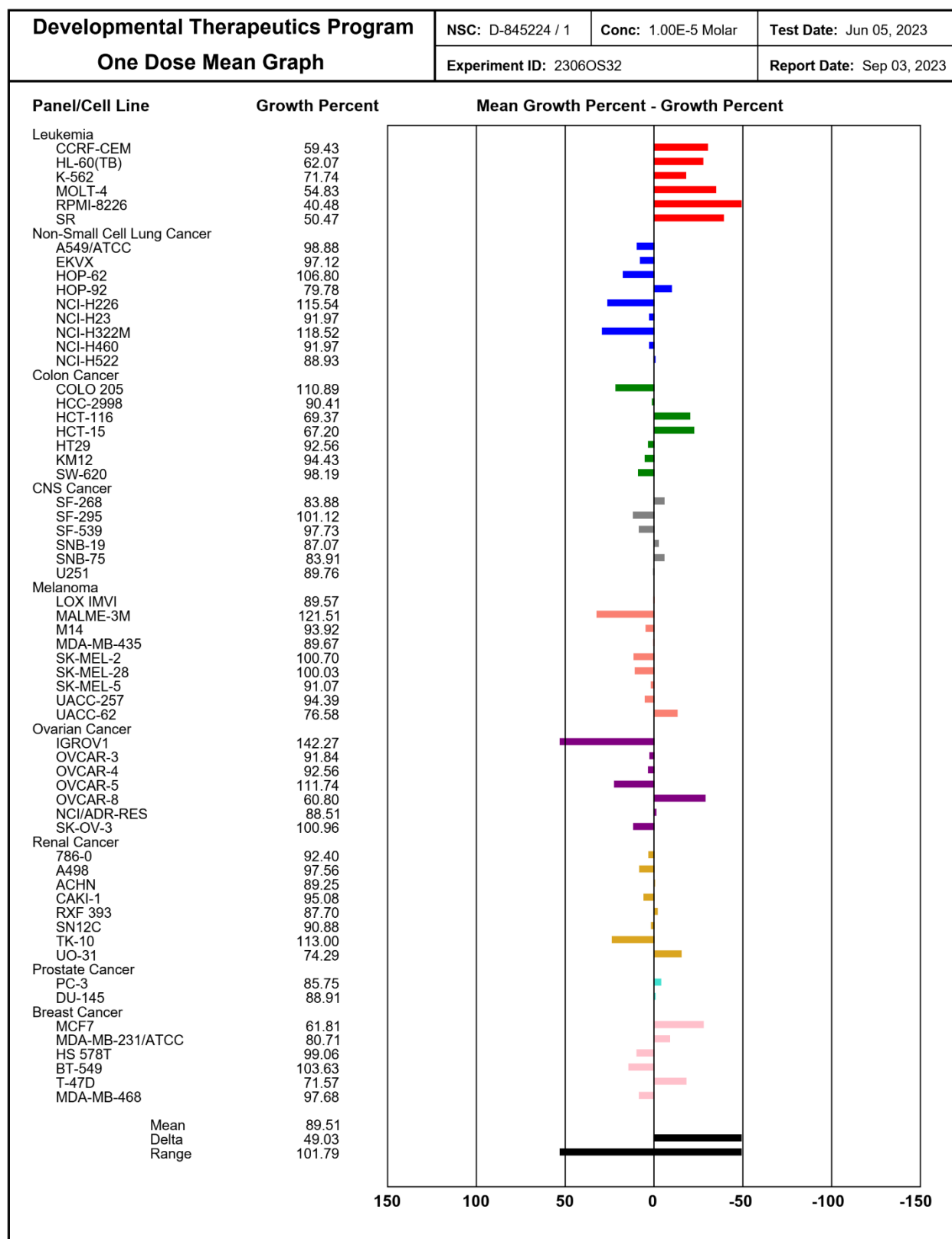
NCI screening results of compound **13a**



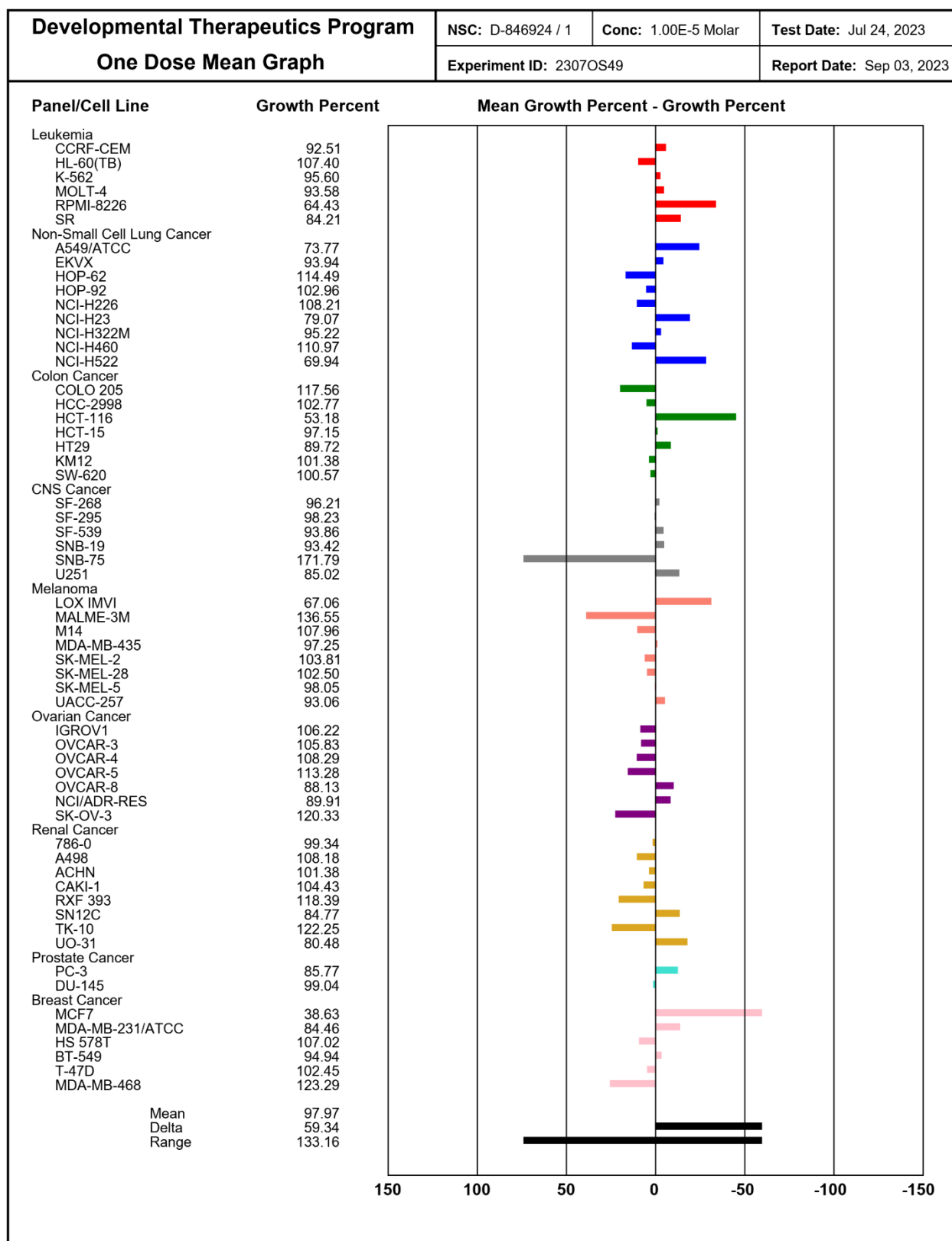
NCI screening results of compound **13b**



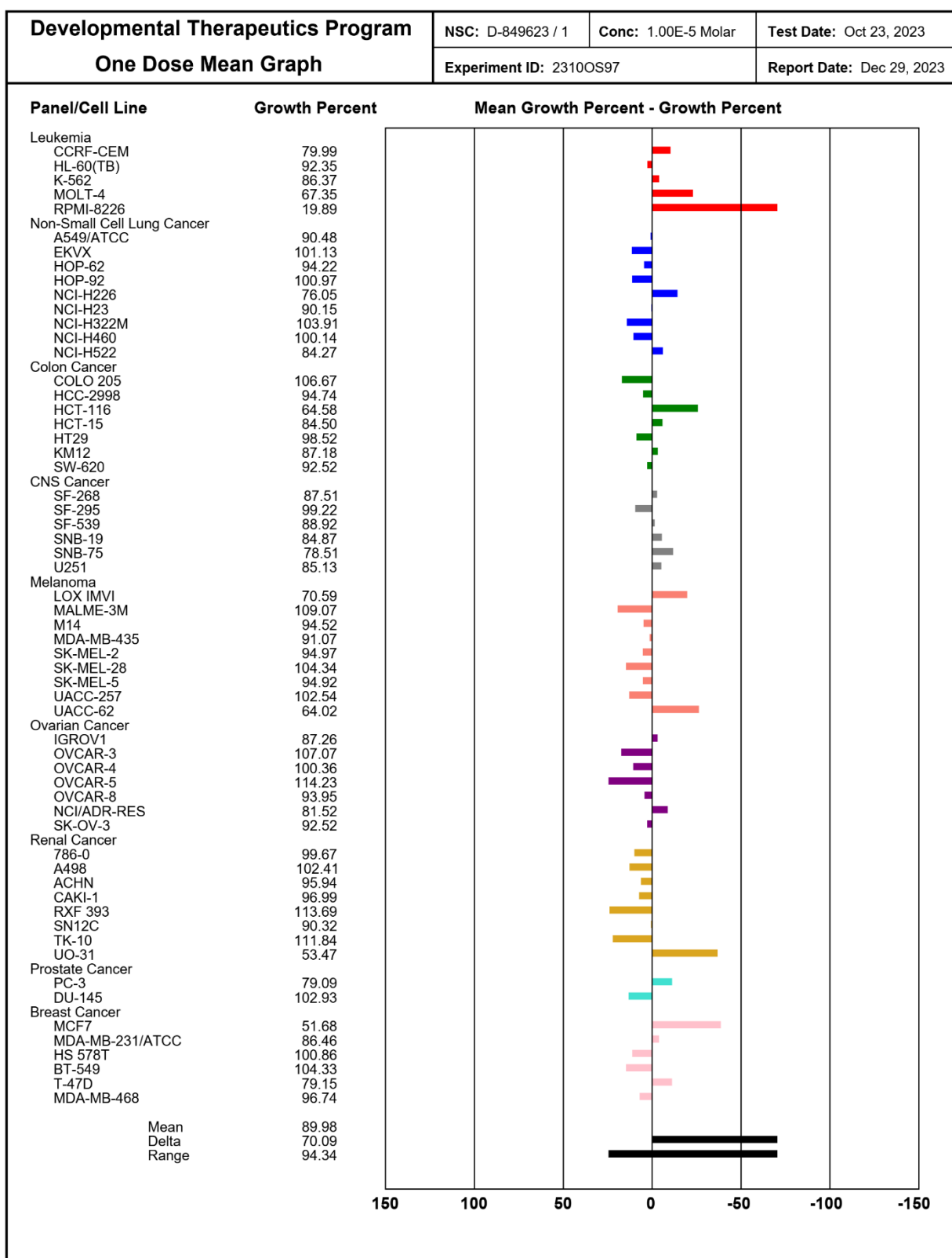
NCI screening results of compound **13c**



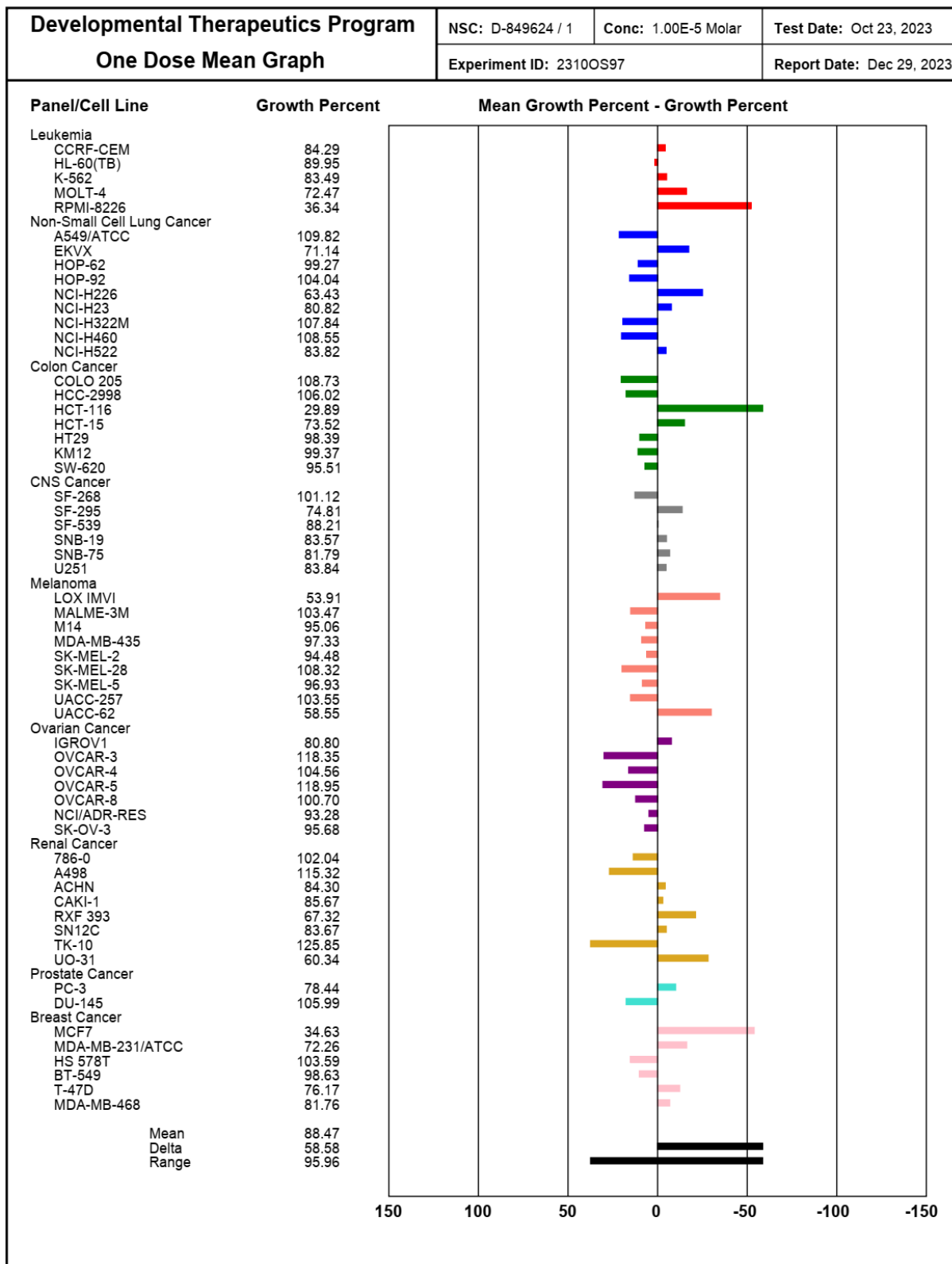
NCI screening results of compound **13d**



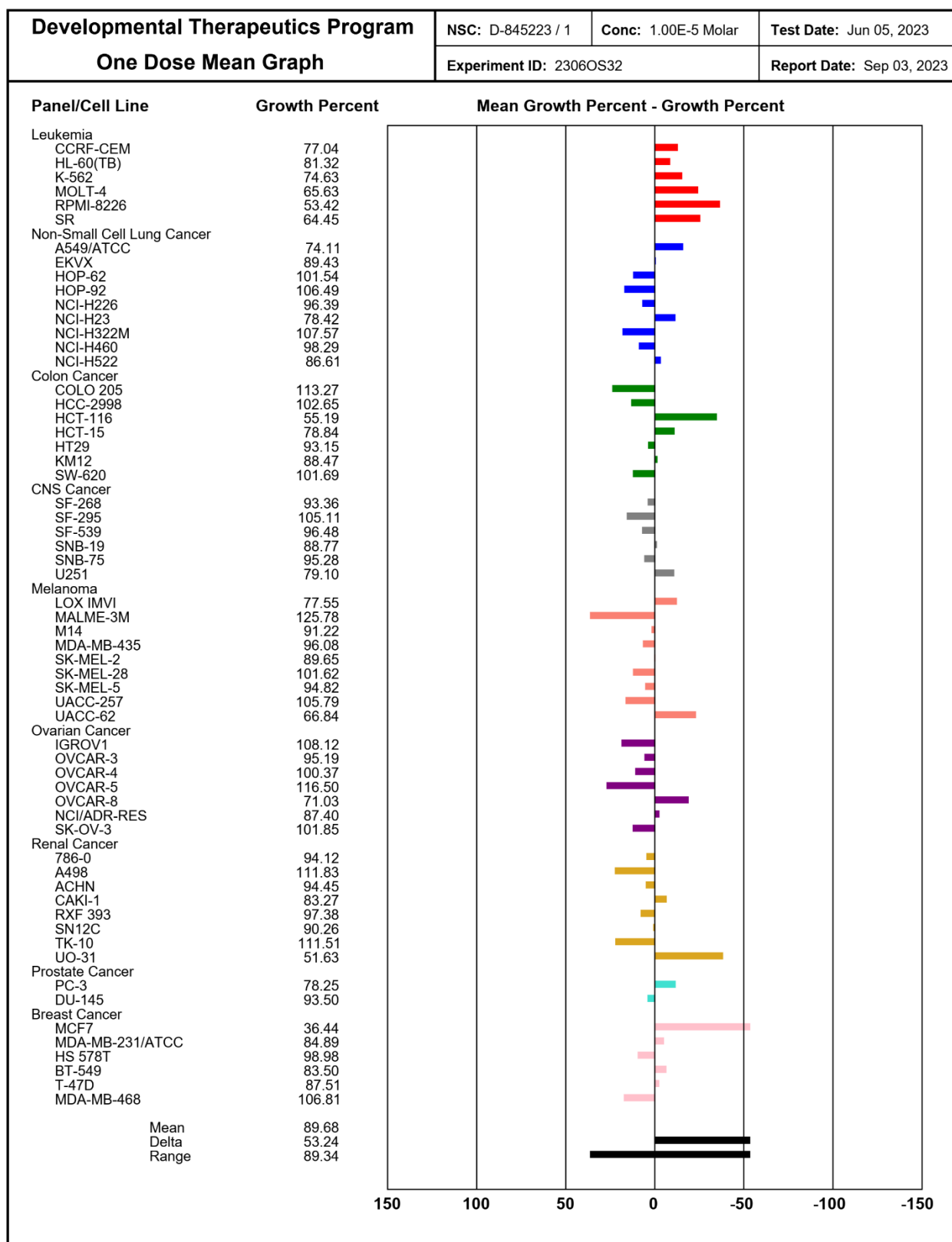
NCI screening results of compound **13e**



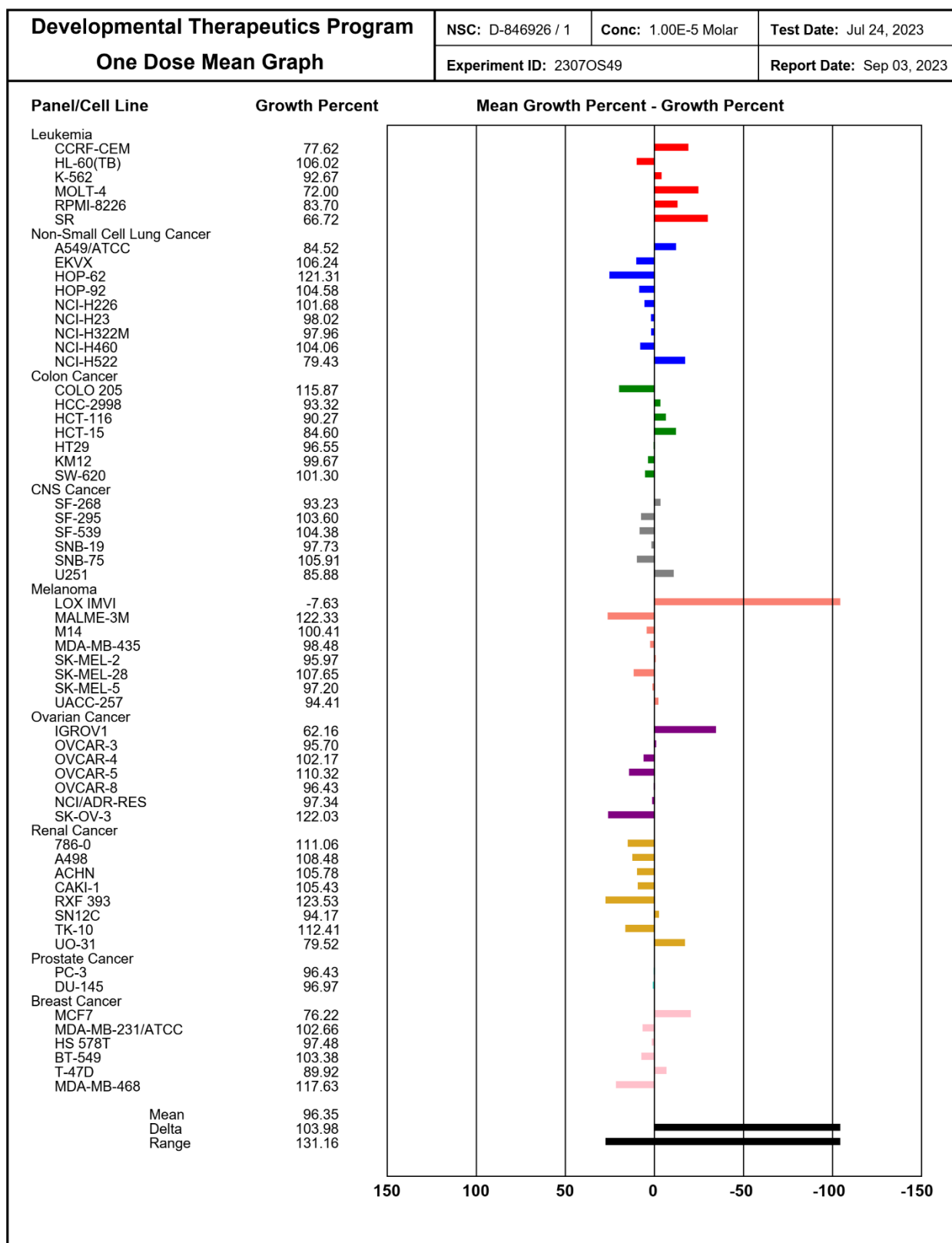
NCI screening results of compound **13f**



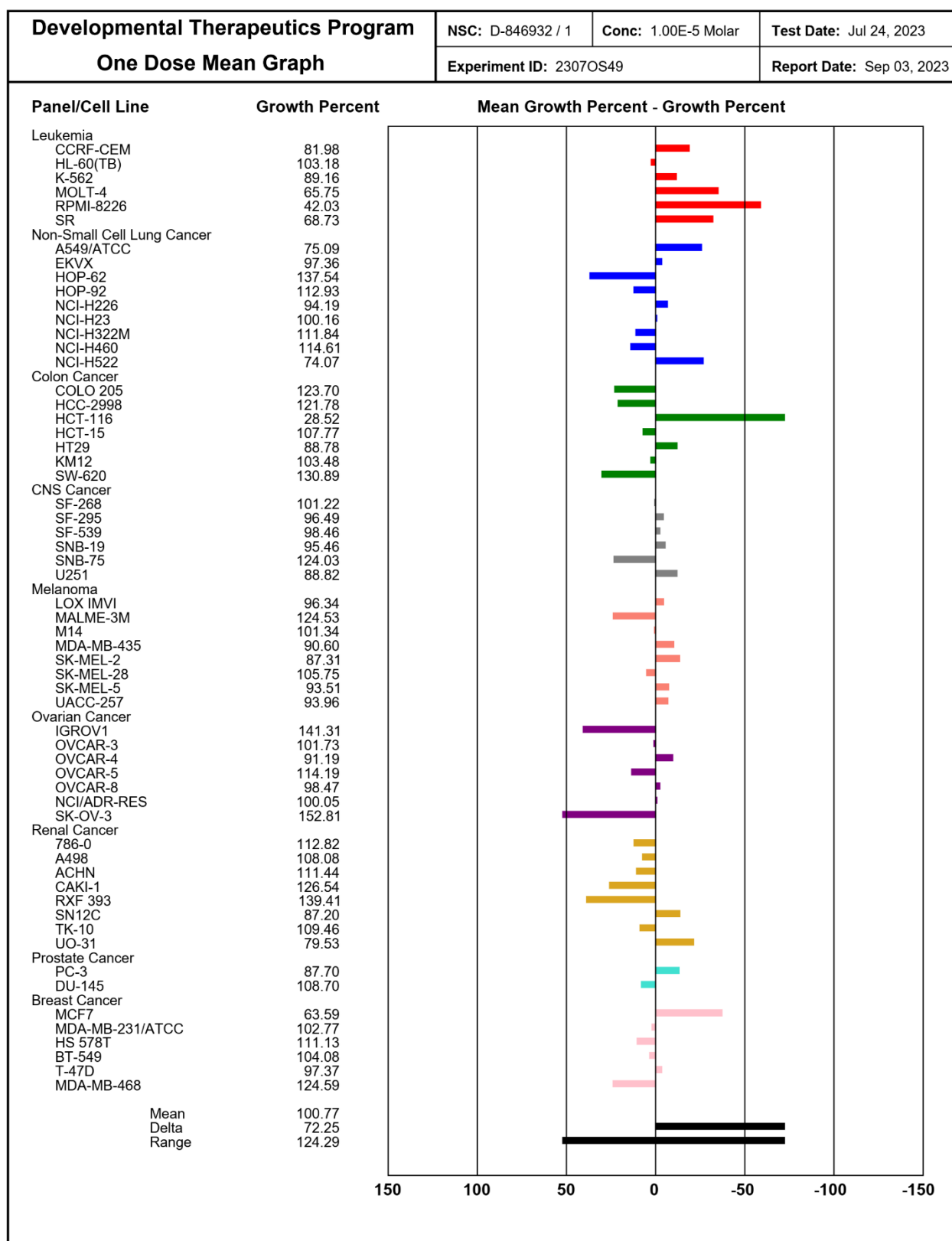
NCI screening results of compound **13g**



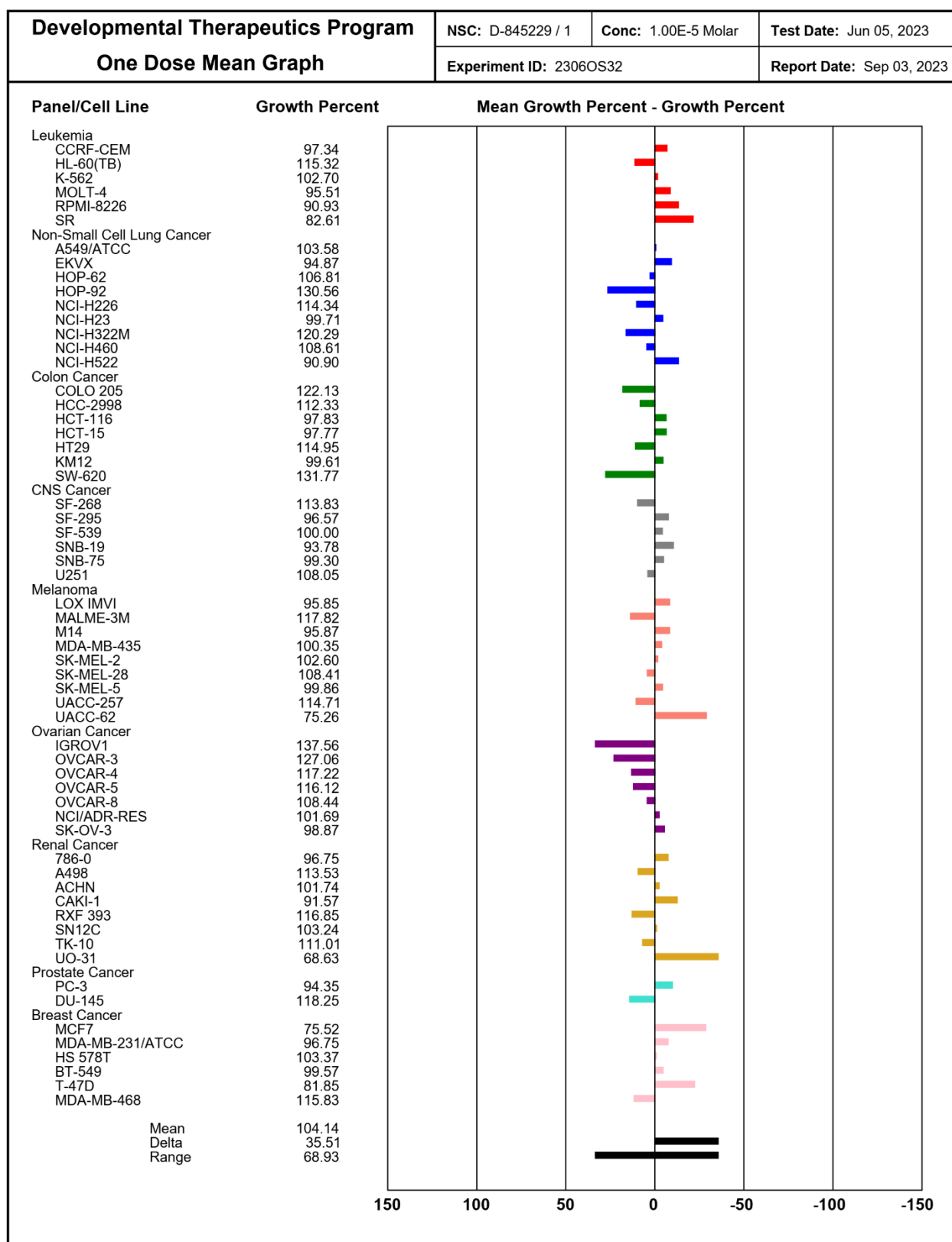
NCI screening results of compound **13h**



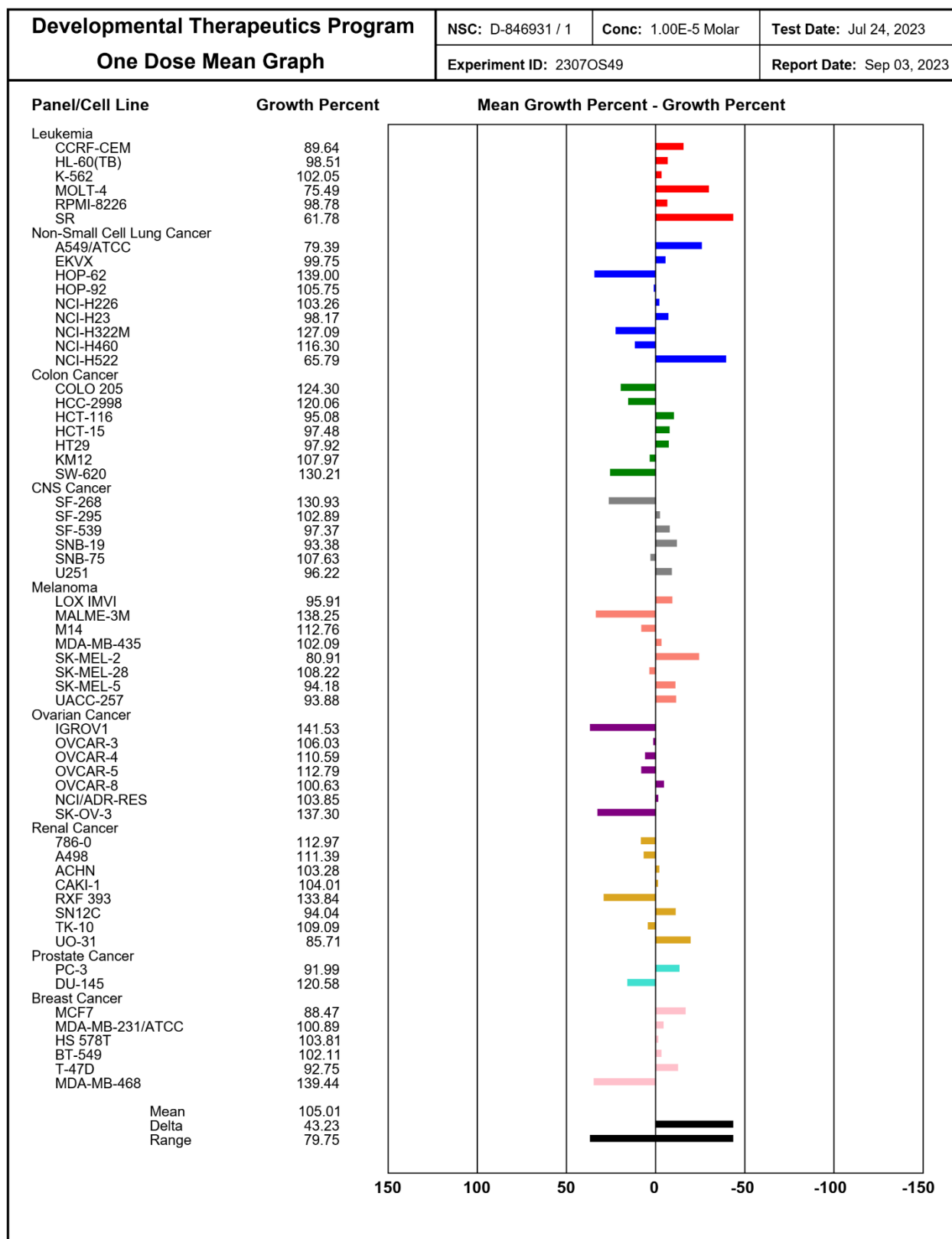
NCI screening results of compound **13i**



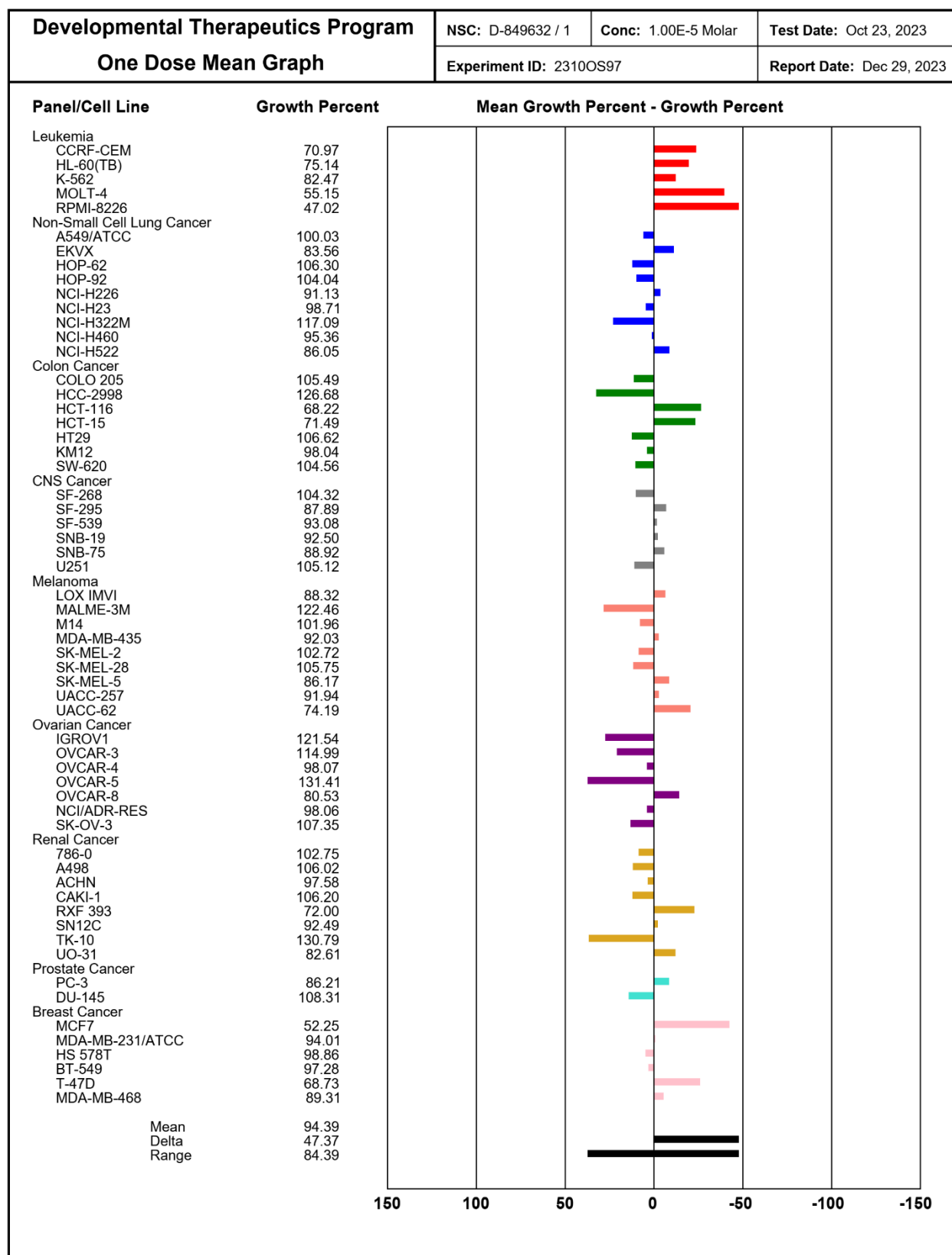
NCI screening results of compound **14a**



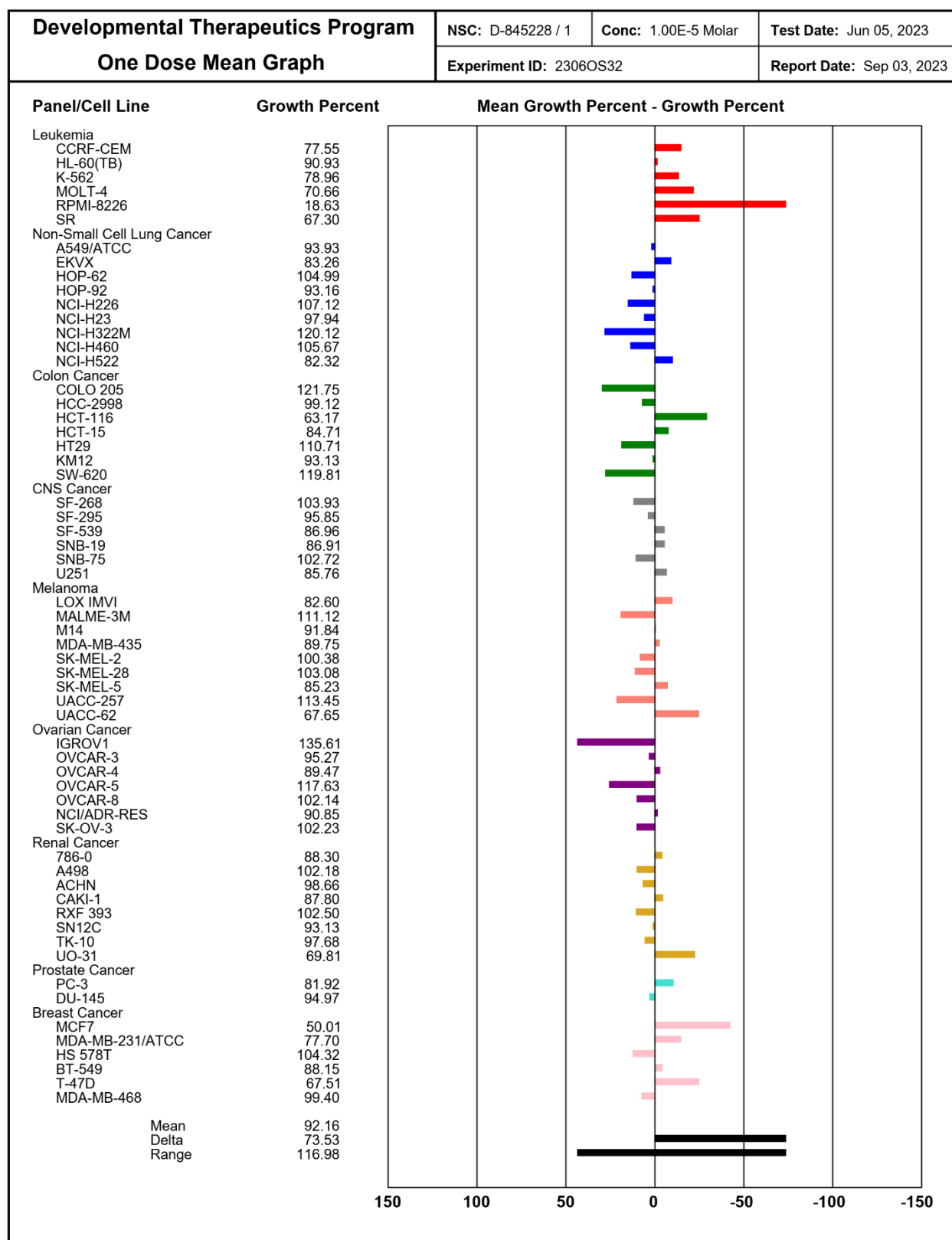
NCI screening results of compound **14b**



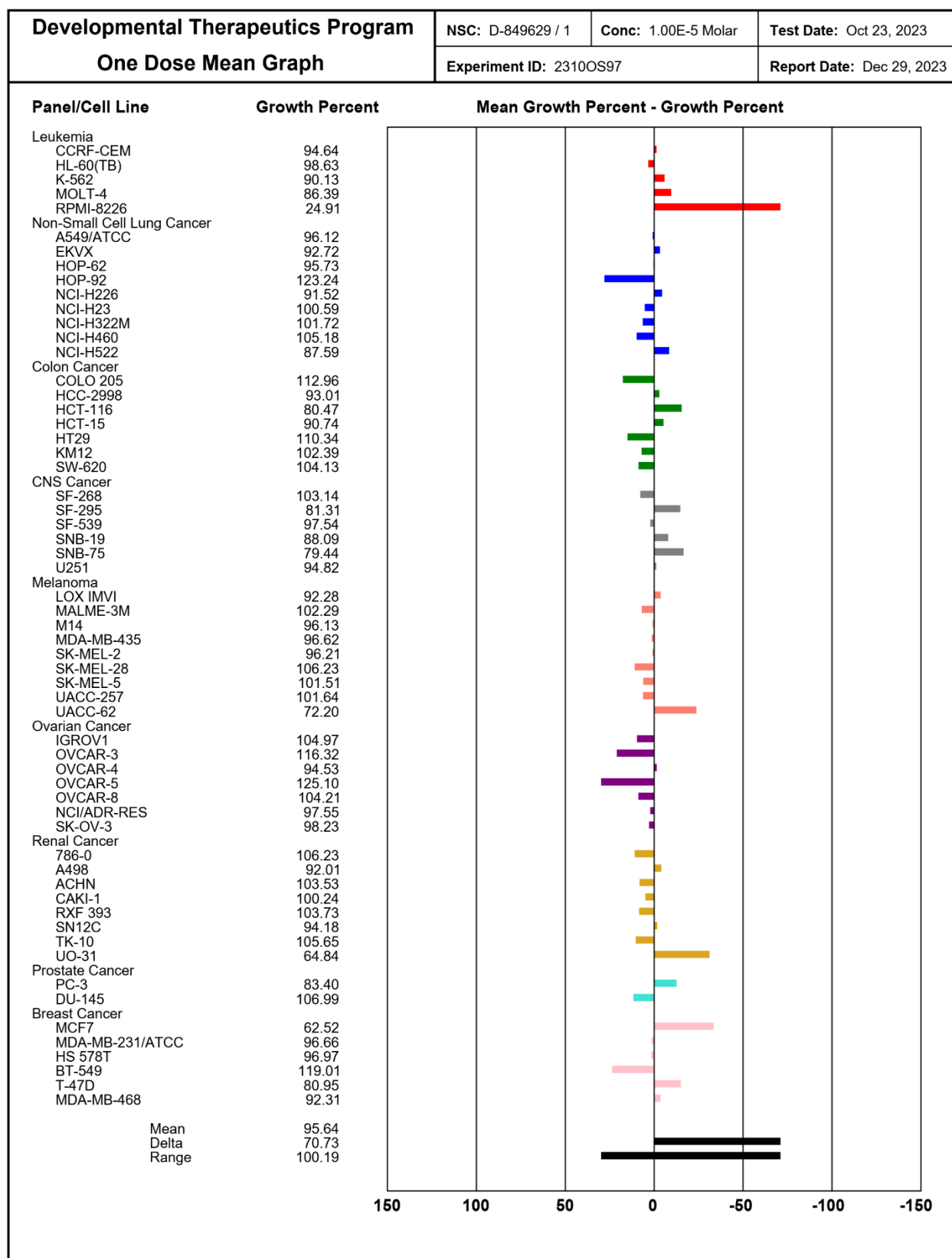
NCI screening results of compound **14c**



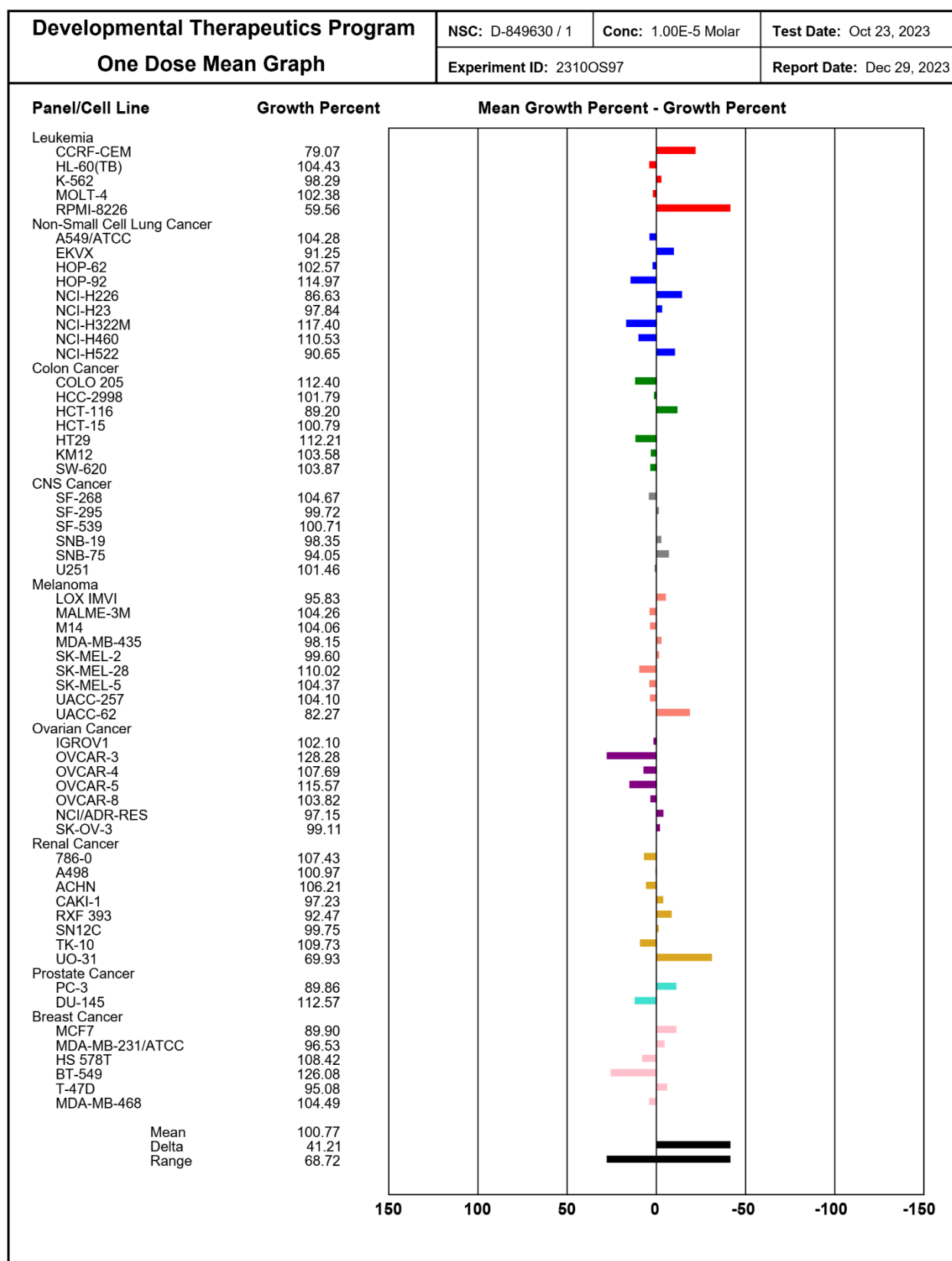
NCI screening results of compound **14d**



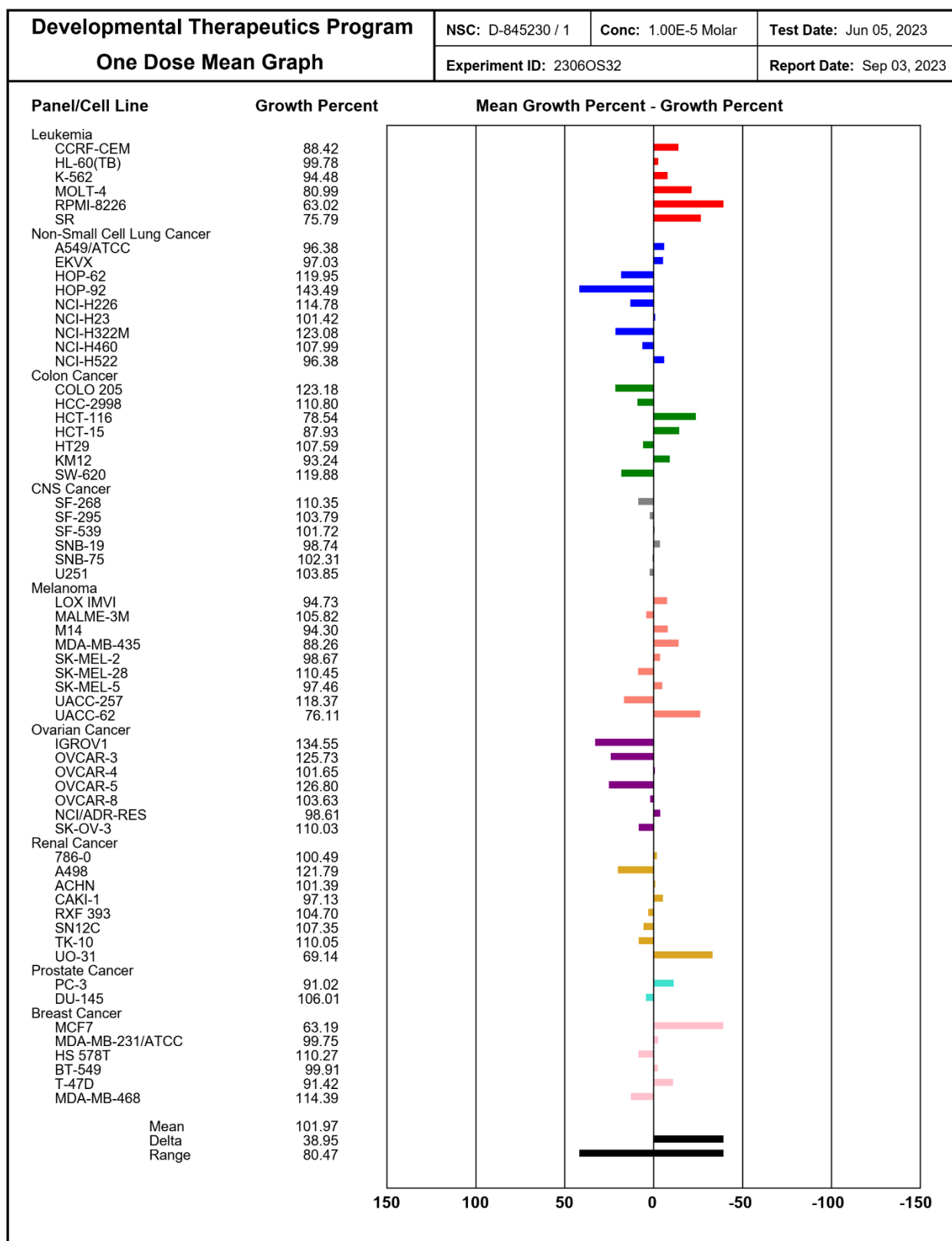
NCI screening results of compound **14e**



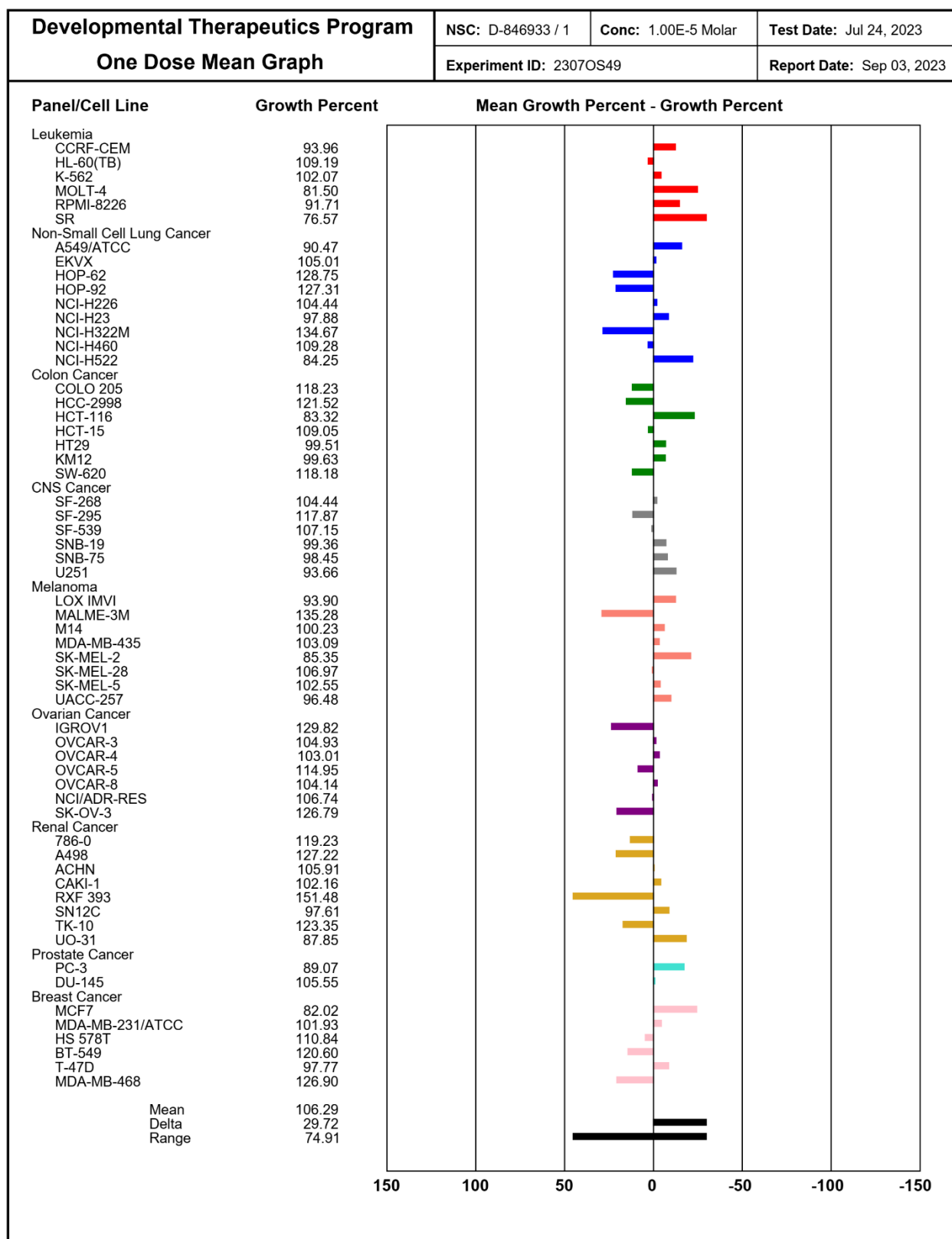
NCI screening results of compound **14f**



NCI screening results of compound **14g**



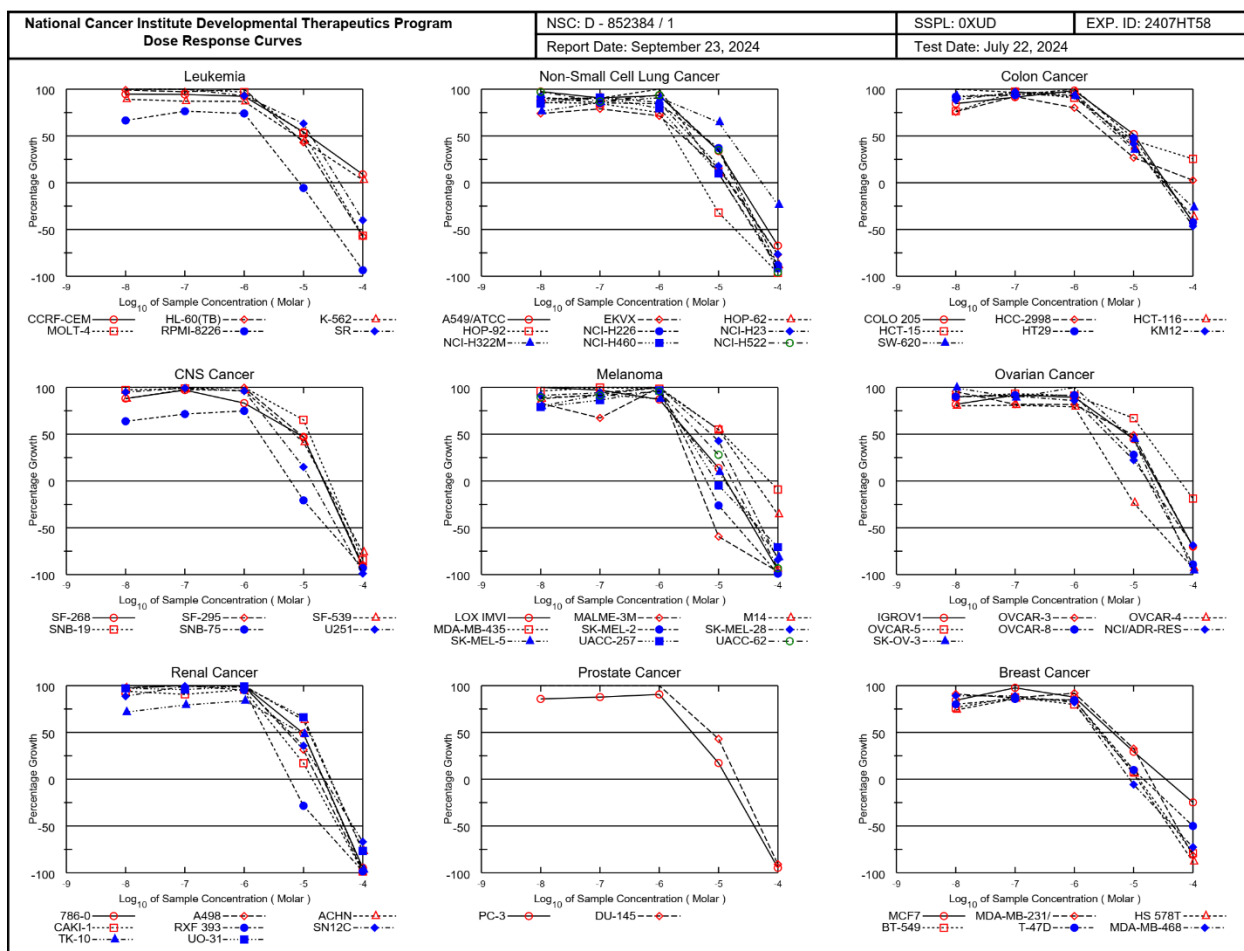
NCI screening results of compound **14h**



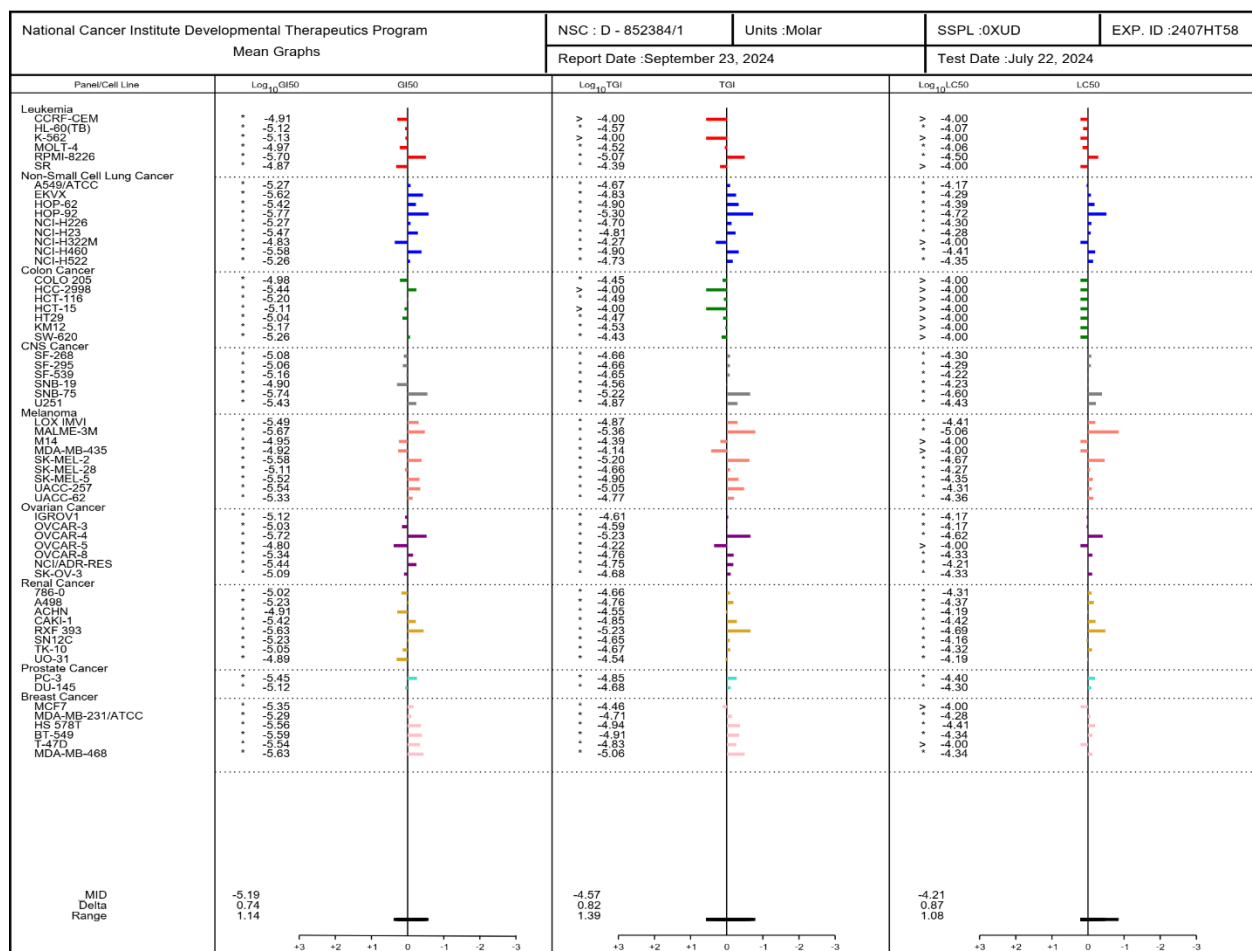
NCI screening results of compound **14i**

National Cancer Institute Developmental Therapeutics Program In-Vitro Testing Results																
NSC : D - 852384 / 1				Experiment ID : 2407HT58						Test Type : HTS			Units : Molar			
Report Date : September 23, 2024				Test Date : July 22, 2024						QNS :			MC :			
COMI : FA-C				Stain Reagent :						SSPL : 0XUD						
Log10 Concentration																
Panel/Cell Line	Time Zero	Ctrl	-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0	GI50	TGI	LC50	
Leukemia																
CCRF-CEM	0.971	4.465	4.274	4.261	4.194	2.865	1.279	95	94	92	54	9	* 1.24E-5	> 1.00E-4	> 1.00E-4	
HL-60(TB)	0.502	2.520	2.499	2.462	2.547	1.371	0.213	99	97	101	43	-58	* 7.62E-6	* 2.68E-5	* 8.42E-5	
K-562	0.421	7.034	6.321	6.180	6.162	3.376	0.614	89	87	87	45	3	* 7.47E-6	> 1.00E-4	> 1.00E-4	
MOLT-4	0.728	3.936	4.141	3.963	3.838	2.417	0.316	106	101	97	53	-57	* 1.06E-5	* 3.04E-5	* 8.70E-5	
RPMI-8226	4.586	10.291	8.372	8.950	8.811	4.353	0.297	66	76	74	-6	-94	* 2.00E-6	* 8.50E-6	* 3.20E-5	
SR	0.953	5.966	6.050	6.054	5.610	4.120	0.571	102	102	93	63	-40	* 1.34E-5	* 4.09E-5	> 1.00E-4	
Non-Small Cell Lung Cancer																
A549/ATCC	0.392	3.845	3.756	3.519	3.608	1.560	0.128	97	91	93	34	-67	* 5.34E-6	* 2.16E-5	* 6.74E-5	
EKVX	5.120	12.533	10.621	10.969	10.413	6.295	1.180	74	79	71	16	-77	* 2.42E-6	* 1.48E-5	* 5.12E-5	
HOP-62	1.512	4.417	4.119	4.136	4.560	1.797	0.175	90	90	105	10	-88	* 3.78E-6	* 1.26E-5	* 4.07E-5	
HOP-92	8.037	10.073	9.780	9.759	9.562	5.475	0.284	86	85	75	-32	-96	* 1.71E-6	* 5.03E-6	* 1.91E-5	
NCI-H226	6.623	16.636	15.794	15.155	15.079	10.338	0.788	92	85	84	37	-88	* 5.34E-6	* 1.98E-5	* 4.96E-5	
NCI-H23	4.634	12.765	11.747	12.053	11.607	6.087	1.091	88	91	86	18	-76	* 3.36E-6	* 1.55E-5	* 5.24E-5	
NCI-H322M	6.734	14.105	12.351	13.071	13.429	11.500	5.135	76	86	91	65	-24	* 1.46E-5	* 5.39E-5	> 1.00E-4	
NCI-H460	0.969	14.239	12.196	13.035	11.518	2.292	0.085	85	91	80	10	-91	* 2.66E-6	* 1.26E-5	* 3.92E-5	
NCI-H522	3.316	8.700	8.544	7.997	8.366	5.206	0.141	97	87	94	35	-96	* 5.49E-6	* 1.84E-5	* 4.46E-5	
Colon Cancer																
COLO 205	0.835	4.088	3.584	3.807	4.034	2.514	0.480	84	91	98	52	-42	* 1.04E-5	* 3.54E-5	> 1.00E-4	
HCC-2998	4.833	12.899	10.952	12.260	11.303	6.994	5.449	76	92	80	27	3	* 3.67E-6	> 1.00E-4	> 1.00E-4	
HCT-116	0.373	4.413	4.559	4.268	4.264	1.914	0.236	104	96	96	38	-37	* 6.24E-6	* 3.23E-5	> 1.00E-4	
HCT-15	1.263	11.600	9.159	11.292	10.623	5.946	3.878	76	97	91	45	25	* 7.84E-6	> 1.00E-4	> 1.00E-4	
HT29	0.509	4.764	4.419	4.493	4.949	2.535	0.293	92	94	104	48	-42	* 9.07E-6	* 3.38E-5	> 1.00E-4	
KM12	0.587	3.695	3.327	3.606	3.484	1.874	0.315	88	97	93	42	-46	* 6.84E-6	* 2.96E-5	> 1.00E-4	
SW-620	0.580	4.432	4.140	4.233	4.148	1.934	0.426	92	95	93	35	-26	* 5.52E-6	* 3.72E-5	> 1.00E-4	
CNS Cancer																
SF-268	1.084	3.256	2.999	3.193	2.890	2.108	0.087	88	97	83	47	-92	* 8.24E-6	* 2.18E-5	* 4.99E-5	
SF-295	1.714	4.361	4.452	4.442	4.349	2.959	0.179	103	103	100	47	-90	* 8.78E-6	* 2.21E-5	* 5.13E-5	
SF-539	4.105	11.961	11.011	11.781	11.697	7.360	0.974	88	98	97	41	-76	* 6.99E-6	* 2.25E-5	* 5.98E-5	
SNB-19	1.783	4.846	4.765	4.815	4.943	3.782	0.280	97	99	103	65	-84	* 1.26E-5	* 2.73E-5	* 5.90E-5	
SNB-75	2.056	3.026	2.675	2.752	2.785	1.630	0.142	64	72	75	-21	-93	* 1.82E-6	* 6.07E-6	* 2.54E-5	
U251	0.623	3.644	3.489	3.624	3.527	1.072	0.006	95	99	96	15	-99	* 3.70E-6	* 1.35E-5	* 3.71E-5	
Melanoma																
LOX IMVI	0.362	2.393	2.504	2.324	2.139	0.644	0.017	105	97	87	14	-95	* 3.21E-6	* 1.34E-5	* 3.85E-5	
MALME-3M	2.638	4.186	3.905	3.679	4.254	1.071	0.081	83	67	104	-59	-97	* 2.15E-6	* 4.34E-6	* 8.76E-6	
M14	4.190	12.223	11.230	11.615	12.349	8.624	2.692	88	92	102	55	-36	* 1.13E-5	* 4.03E-5	> 1.00E-4	
MDA-MB-435	1.129	3.672	3.573	3.669	3.634	2.530	1.058	96	100	99	55	-9	* 1.20E-5	* 7.21E-5	> 1.00E-4	
SK-MEL-2	2.588	5.897	6.097	5.969	6.072	1.912	0.024	106	102	105	-26	-99	* 2.63E-6	* 6.31E-6	* 2.12E-5	
SK-MEL-28	1.628	5.162	4.859	4.958	5.372	3.140	0.257	91	94	106	43	-84	* 7.68E-6	* 2.17E-5	* 5.38E-5	
SK-MEL-5	2.807	8.413	7.275	7.977	7.726	3.340	0.518	80	92	88	9	-82	* 3.04E-6	* 1.27E-5	* 4.50E-5	
UACC-257	4.071	8.193	7.333	7.632	8.058	3.874	1.194	79	86	97	-5	-71	* 2.88E-6	* 8.96E-6	* 4.85E-5	
UACC-62	0.765	3.471	3.179	3.236	3.356	1.523	0.051	89	91	96	28	-93	* 4.72E-6	* 1.70E-5	* 4.39E-5	
Ovarian Cancer																
IGROV1	1.599	4.185	3.715	3.972	3.920	2.760	0.478	82	92	90	45	-70	* 7.62E-6	* 2.45E-5	* 6.68E-5	
OVCA-3	2.879	11.110	10.719	9.600	9.594	6.943	0.842	96	82	82	49	-71	* 9.25E-6	* 2.56E-5	* 6.71E-5	
OVCA-4	4.638	7.807	7.191	7.221	7.212	3.546	0.324	80	81	79	-24	-93	* 1.92E-6	* 5.90E-6	* 2.40E-5	
OVCA-5	5.432	11.681	11.036	11.255	11.136	9.625	4.405	90	93	91	67	-19	* 1.58E-5	* 6.03E-5	> 1.00E-4	
OVCA-8	0.988	4.547	4.195	4.252	4.252	1.986	0.106	90	92	92	28	-89	* 4.52E-6	* 1.73E-5	* 4.63E-5	
NCI/ADR-RES	3.228	11.136	10.346	10.414	10.023	4.991	1.011	90	91	86	22	-69	* 3.67E-6	* 1.76E-5	* 6.23E-5	
SK-OV-3	2.770	12.397	12.359	11.340	12.615	7.081	0.120	100	89	102	45	-96	* 8.13E-6	* 2.09E-5	* 4.73E-5	
Renal Cancer																
786-0	1.731	5.201	5.342	5.263	5.223	3.428	0.093	104	102	101	49	-95	* 9.52E-6	* 2.19E-5	* 4.89E-5	
A498	2.609	8.390	8.257	8.562	9.157	4.421	0.049	98	103	113	32	-98	* 5.95E-6	* 1.75E-5	* 4.25E-5	
ACHN	1.003	4.558	4.459	4.606	4.610	3.236	0.230	97	101	101	63	-77	* 1.24E-5	* 2.82E-5	* 6.41E-5	
CAKI-1	1.015	4.758	4.535	4.413	4.598	1.663	0.014	94	91	96	17	-99	* 3.82E-6	* 1.41E-5	* 3.80E-5	
RXF 393	2.078	3.410	3.461	3.410	3.346	1.489	0.033	104	100	95	-28	-98	* 2.32E-6	* 5.89E-6	* 2.04E-5	
SN12C	0.660	2.694	2.464	2.684	2.672	1.387	0.219	89	99	99	36	-67	* 5.95E-6	* 2.23E-5	* 6.85E-5	
TK-10	7.459	17.390	14.582	15.332	15.784	12.241	0.252	72	79	84	48	-97	* 8.94E-6	* 2.15E-5	* 4.77E-5	
UO-31	1.590	5.994	5.863	5.804	5.957	4.502	0.372	97	96	99	66	-77	* 1.30E-5	* 2.91E-5	* 6.51E-5	
Prostate Cancer																
PC-3	4.255	11.740	10.682	10.831	11.044	5.557	0.227	86	88	91	17	-95	* 3.58E-6	* 1.43E-5	* 3.99E-5	
DU-145	0.789	3.555	3.703	3.597	3.594	1.981	0.073	105	102	101	43	-91	* 7.62E-6	* 2.10E-5	* 4.96E-5	
Breast Cancer																
MCF7	0.974	8.716	7.499	8.551	7.758	3.240	0.732	84	98	88	29	-25	* 4.43E-6	* 3.48E-5	> 1.00E-4	
MDA-MB-231/ATCC	4.073	8.995	8.551	8.355	8.601	5.683	0.744	91	87	92	33	-82	* 5.11E-6	* 1.93E-5	* 5.28E-5	
HS 578T	2.251	3.977	3.522	3.735	3.721	2.339	0.269	74	86	85	6	-88	* 2.76E-6	* 1.15E-5	* 3.93E-5	
BT-549	6.928	13.238	11.774	12.469	11.965	7.400	1.446	77	88	80	8	-79	* 2.59E-6	* 1.23E-5	* 4.62E-5	
T-47D	6.839	11.433	10.520	10.779	10.720	7.293	3.422	80	86	84	10	-50	* 2.90E-6	* 1.46E-5	> 1.00E-4	
MDA-MB-468	5.295	9.689	9.214	9.201	8.907	4.992	1.452	89	89	82	-6	-73	* 2.33E-6	* 8.61E-6	* 4.60E-5	

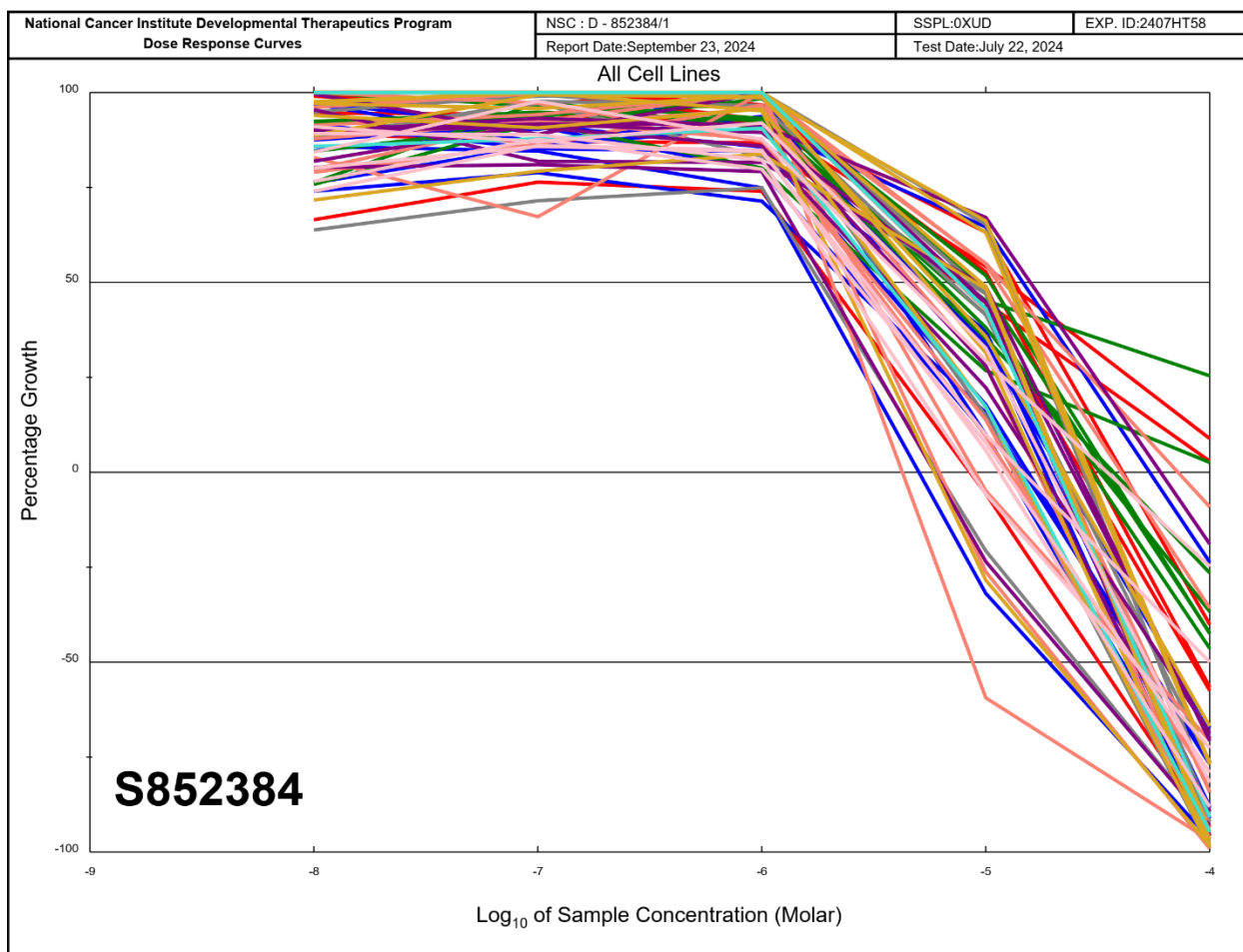
NCI five dose results of compound 10b



NCI five dose results of compound **10b**



NCI five dose results of compound 10b



NCI five dose results of compound **10b**

National Cancer Institute Developmental Therapeutics Program		NSC : D - 852384/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT58	
Waterfall Graph GI50		Report Date :September 23, 2024				Test Date :July 22, 2024			
Panel	Cell Name	Hollow Fiber		GI50					
Non-Small Cell Lung Cancer	HOP-92	*	-5.77						
CNS Cancer	SNB-75	*	-5.74						
Ovarian Cancer	OVCAR-4	*	-5.72						
Leukemia	RPMI-8226	*	-5.70						
Melanoma	MALME-3M	*	-5.67						
Renal Cancer	RXF 393	*	-5.63						
Breast Cancer	MDA-MB-468	*	-5.63						
Non-Small Cell Lung Cancer	EKVX	*	-5.62						
Breast Cancer	BT-549	*	-5.59						
Melanoma	SK-MEL-2	*	-5.58						
Non-Small Cell Lung Cancer	NCI-H460	*	-5.58						
Breast Cancer	HS 578T	*	-5.56						
Melanoma	UACC-257	*	-5.54						
Breast Cancer	T-47D	*	-5.54						
Melanoma	SK-MEL-5	*	-5.52						
Melanoma	LOX IMVI	*	-5.49						
Non-Small Cell Lung Cancer	NCI-H23	*	-5.47						
Prostate Cancer	PC-3	*	-5.45						
Ovarian Cancer	NCI/ADR-RES	*	-5.44						
Colon Cancer	HCC-2998	*	-5.44						
CNS Cancer	U251	*	-5.43						
Non-Small Cell Lung Cancer	HOP-62	*	-5.42						
Renal Cancer	CAKI-1	*	-5.42						
Breast Cancer	MCF7	*	-5.35						
Ovarian Cancer	OVCAR-8	*	-5.34						
Melanoma	UACC-62	*	-5.33						
Breast Cancer	MDA-MB-231/ATCC	*	-5.29						
Non-Small Cell Lung Cancer	NCI-H226	*	-5.27						
Non-Small Cell Lung Cancer	A549/ATCC	*	-5.27						
Non-Small Cell Lung Cancer	NCI-H522	*	-5.26						
Colon Cancer	SW-620	*	-5.26						
Renal Cancer	A498	*	-5.23						
Renal Cancer	SN12C	*	-5.23						
Colon Cancer	HCT-116	*	-5.20						
Colon Cancer	KM12	*	-5.17						
CNS Cancer	SF-539	*	-5.16						
Leukemia	K-562	*	-5.13						
Prostate Cancer	DU-145	*	-5.12						
Leukemia	HL-60(TB)	*	-5.12						
Ovarian Cancer	IGROV1	*	-5.12						
Melanoma	SK-MEL-28	*	-5.11						
Colon Cancer	HCT-15	*	-5.11						
Ovarian Cancer	SK-OV-3	*	-5.09						
CNS Cancer	SF-268	*	-5.08						
CNS Cancer	SF-295	*	-5.06						
Renal Cancer	TK-10	*	-5.05						
Colon Cancer	HT29	*	-5.04						
Ovarian Cancer	OVCAR-3	*	-5.03						
Renal Cancer	786-0	*	-5.02						
Colon Cancer	COLO 205	*	-4.98						
Leukemia	MOLT-4	*	-4.97						
Melanoma	M14	*	-4.95						
Melanoma	MDA-MB-435	*	-4.92						
Leukemia	CCRF-CEM	*	-4.91						
Renal Cancer	ACHN	*	-4.91						
CNS Cancer	SNB-19	*	-4.90						
Renal Cancer	UO-31	*	-4.89						
Leukemia	SR	*	-4.87						
Non-Small Cell Lung Cancer	NCI-H322M	*	-4.83						
Ovarian Cancer	OVCAR-5	*	-4.80						
Log10 High Conc :-4.0									

NCI five dose results of compound **10b**

National Cancer Institute Developmental Therapeutics Program		NSC : D - 852384/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT58	
Waterfall Graph TGI		Report Date :September 23, 2024				Test Date :July 22, 2024			
Panel	Cell Name	Hollow Fiber	TGI						
Melanoma	MALME-3M		*	-5.36					
Non-Small Cell Lung Cancer	HOP-92		*	-5.30					
Renal Cancer	RXF 393		*	-5.23					
Ovarian Cancer	OVCAR-4		*	-5.23					
CNS Cancer	SNB-75		*	-5.22					
Melanoma	SK-MEL-2		*	-5.20					
Leukemia	RPMI-8226		*	-5.07					
Breast Cancer	MDA-MB-468		*	-5.06					
Melanoma	UACC-257		*	-5.05					
Breast Cancer	HS 578T		*	-4.94					
Breast Cancer	BT-549		*	-4.91					
Non-Small Cell Lung Cancer	NCI-H460		*	-4.90					
Non-Small Cell Lung Cancer	HOP-62		*	-4.90					
Melanoma	SK-MEL-5		*	-4.90					
Melanoma	LOX IMVI	*	*	-4.87					
CNS Cancer	U251	*	*	-4.87					
Renal Cancer	CAKI-1		*	-4.85					
Prostate Cancer	PC-3		*	-4.85					
Breast Cancer	T-47D		*	-4.83					
Non-Small Cell Lung Cancer	EKVX		*	-4.83					
Non-Small Cell Lung Cancer	NCI-H23	*	*	-4.81					
Melanoma	UACC-62	*	*	-4.77					
Ovarian Cancer	OVCAR-8		*	-4.76					
Renal Cancer	A498		*	-4.76					
Ovarian Cancer	NCI/ADR-RES		*	-4.75					
Non-Small Cell Lung Cancer	NCI-H522	*	*	-4.73					
Breast Cancer	MDA-MB-231/ATCC	*	*	-4.71					
Non-Small Cell Lung Cancer	NCI-H226		*	-4.70					
Ovarian Cancer	SK-OV-3		*	-4.68					
Prostate Cancer	DU-145		*	-4.68					
Renal Cancer	TK-10		*	-4.67					
Non-Small Cell Lung Cancer	A549/ATCC		*	-4.67					
Melanoma	SK-MEL-28		*	-4.66					
CNS Cancer	SF-268		*	-4.66					
Renal Cancer	786-0		*	-4.66					
CNS Cancer	SF-295	*	*	-4.66					
Renal Cancer	SN12C		*	-4.65					
CNS Cancer	SF-539		*	-4.65					
Ovarian Cancer	IGROV1		*	-4.61					
Ovarian Cancer	OVCAR-3	*	*	-4.59					
Leukemia	HL-60(TB)		*	-4.57					
CNS Cancer	SNB-19		*	-4.56					
Renal Cancer	ACHN		*	-4.55					
Renal Cancer	UO-31		*	-4.54					
Colon Cancer	KM12		*	-4.53					
Leukemia	MOLT-4		*	-4.52					
Colon Cancer	HCT-116		*	-4.49					
Colon Cancer	HT29		*	-4.47					
Breast Cancer	MCF7	*	*	-4.46					
Colon Cancer	COLO 205	*	*	-4.45					
Colon Cancer	SW-620	*	*	-4.43					
Melanoma	M14		*	-4.39					
Leukemia	SR		*	-4.39					
Non-Small Cell Lung Cancer	NCI-H322M	*	*	-4.27					
Ovarian Cancer	OVCAR-5	*	*	-4.22					
Melanoma	MDA-MB-435	*	*	-4.14					
Leukemia	CCRF-CEM		>	-4.00					
Leukemia	K-562		>	-4.00					
Colon Cancer	HCC-2998		>	-4.00					
Colon Cancer	HCT-15		>	-4.00					
Log10 High Conc : -4.0									

Log10 High Conc : -4.0

NCI five dose results of compound **10b**

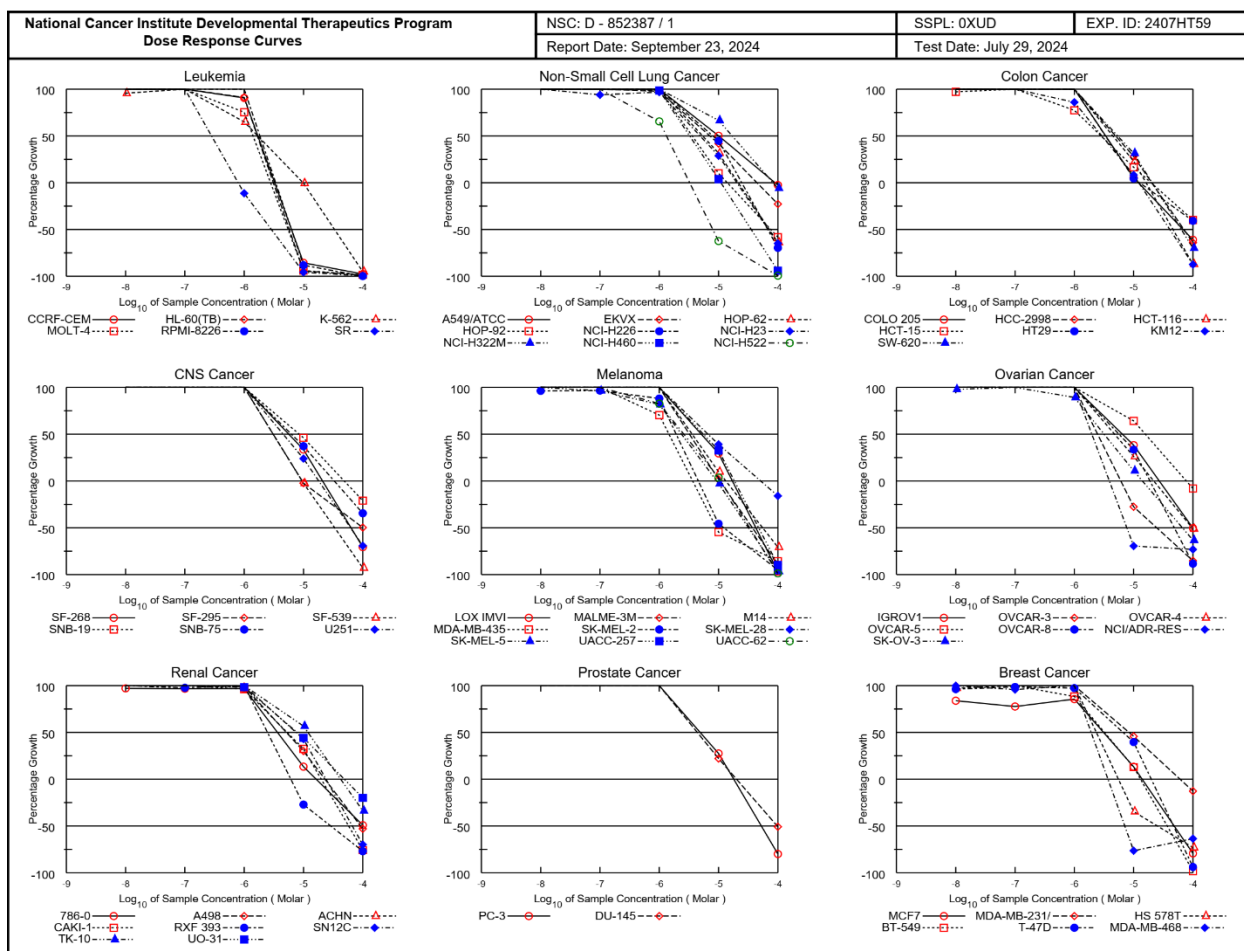
National Cancer Institute Developmental Therapeutics Program		NSC : D - 852384/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT58	
Waterfall Graph LC50		Report Date :September 23, 2024				Test Date :July 22, 2024			
Panel	Cell Name	Hollow Fiber	LC50						
Melanoma	MALME-3M	*	-5.06						
Non-Small Cell Lung Cancer	HOP-92	*	-4.72						
Renal Cancer	RXF 393	*	-4.69						
Melanoma	SK-MEL-2	*	-4.67						
Ovarian Cancer	OVCAR-4	*	-4.62						
CNS Cancer	SNB-75	*	-4.60						
Leukemia	RPMI-8226	*	-4.50						
CNS Cancer	U251	*	-4.43						
Renal Cancer	CAKI-1	*	-4.42						
Melanoma	LOX IMVI	*	-4.41						
Non-Small Cell Lung Cancer	NCI-H460	*	-4.41						
Breast Cancer	HS 578T	*	-4.41						
Prostate Cancer	PC-3	*	-4.40						
Non-Small Cell Lung Cancer	HOP-62	*	-4.39						
Renal Cancer	A498	*	-4.37						
Melanoma	UACC-62	*	-4.36						
Non-Small Cell Lung Cancer	NCI-H522	*	-4.35						
Melanoma	SK-MEL-5	*	-4.35						
Breast Cancer	MDA-MB-468	*	-4.34						
Breast Cancer	BT-549	*	-4.34						
Ovarian Cancer	OVCAR-8	*	-4.33						
Ovarian Cancer	SK-OV-3	*	-4.33						
Renal Cancer	TK-10	*	-4.32						
Melanoma	UACC-257	*	-4.31						
Renal Cancer	786-0	*	-4.31						
Prostate Cancer	DU-145	*	-4.30						
Non-Small Cell Lung Cancer	NCI-H226	*	-4.30						
CNS Cancer	SF-268	*	-4.30						
Non-Small Cell Lung Cancer	EKVX	*	-4.29						
CNS Cancer	SF-295	*	-4.29						
Non-Small Cell Lung Cancer	NCI-H23	*	-4.28						
Breast Cancer	MDA-MB-231/ATCC	*	-4.28						
Melanoma	SK-MEL-28	*	-4.27						
CNS Cancer	SNB-19	*	-4.23						
CNS Cancer	SF-539	*	-4.22						
Ovarian Cancer	NCI/ADR-RES	*	-4.21						
Renal Cancer	ACHN	*	-4.19						
Renal Cancer	UO-31	*	-4.19						
Ovarian Cancer	IGROV1	*	-4.17						
Ovarian Cancer	OVCAR-3	*	-4.17						
Non-Small Cell Lung Cancer	AS49/ATCC	*	-4.17						
Renal Cancer	SN12C	*	-4.16						
Leukemia	HL-60(TB)	*	-4.07						
Leukemia	MOLT-4	*	-4.06						
Leukemia	CCRF-CEM	*	> -4.00						
Leukemia	K-562	*	> -4.00						
Leukemia	SR	*	> -4.00						
Non-Small Cell Lung Cancer	NCI-H322M	*	> -4.00						
Colon Cancer	COLO 205	*	> -4.00						
Colon Cancer	HCC-2998	*	> -4.00						
Colon Cancer	HCT-116	*	> -4.00						
Colon Cancer	HCT-15	*	> -4.00						
Colon Cancer	HT29	*	> -4.00						
Colon Cancer	KM12	*	> -4.00						
Colon Cancer	SW-620	*	> -4.00						
Melanoma	M14	*	> -4.00						
Melanoma	MDA-MB-435	*	> -4.00						
Ovarian Cancer	OVCAR-5	*	> -4.00						
Breast Cancer	MCF7	*	> -4.00						
Breast Cancer	T-47D	*	> -4.00						
Log10 High Conc : -4.0									

Log10 High Conc : -4.0

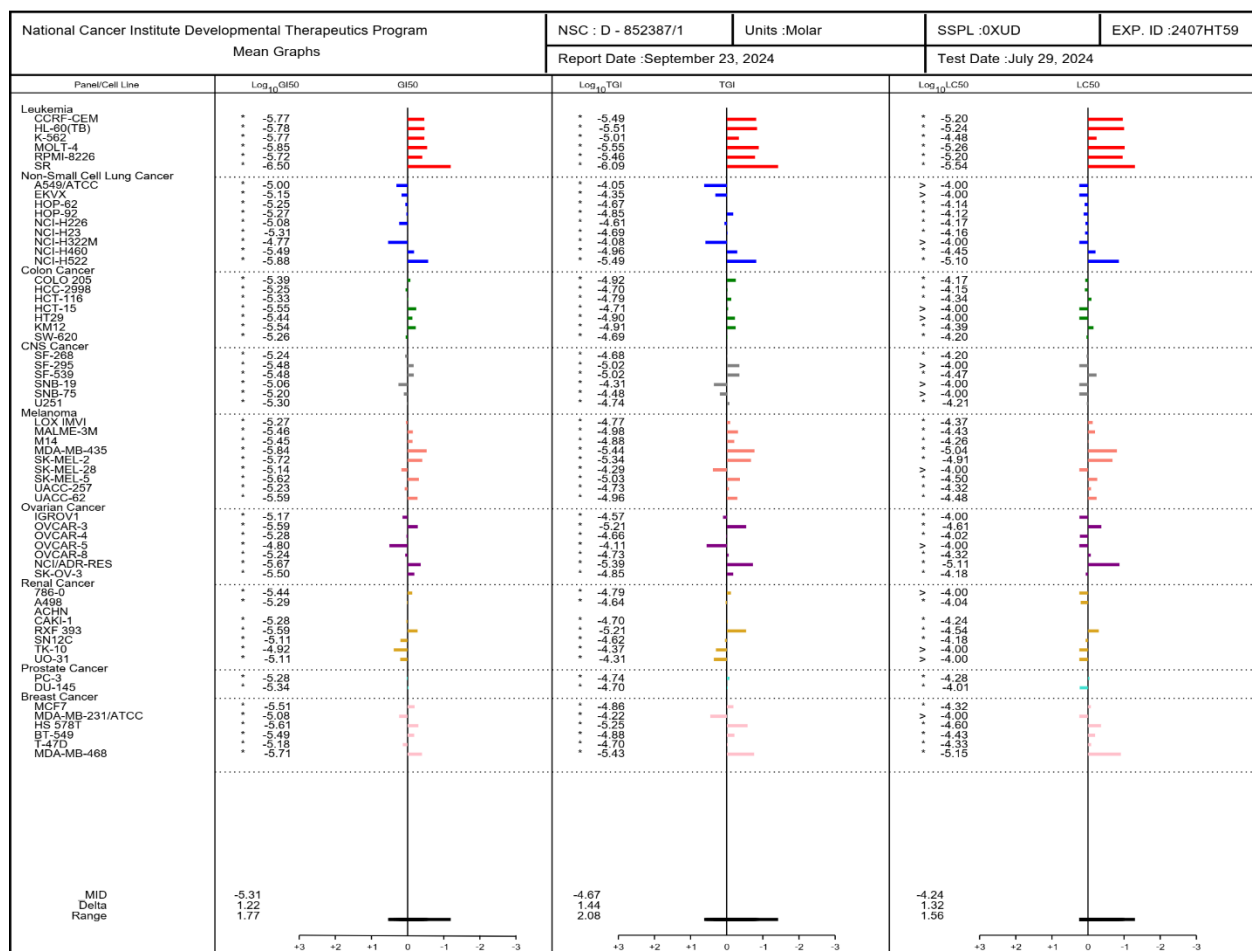
NCI five dose results of compound **10b**

National Cancer Institute Developmental Therapeutics Program In-Vitro Testing Results

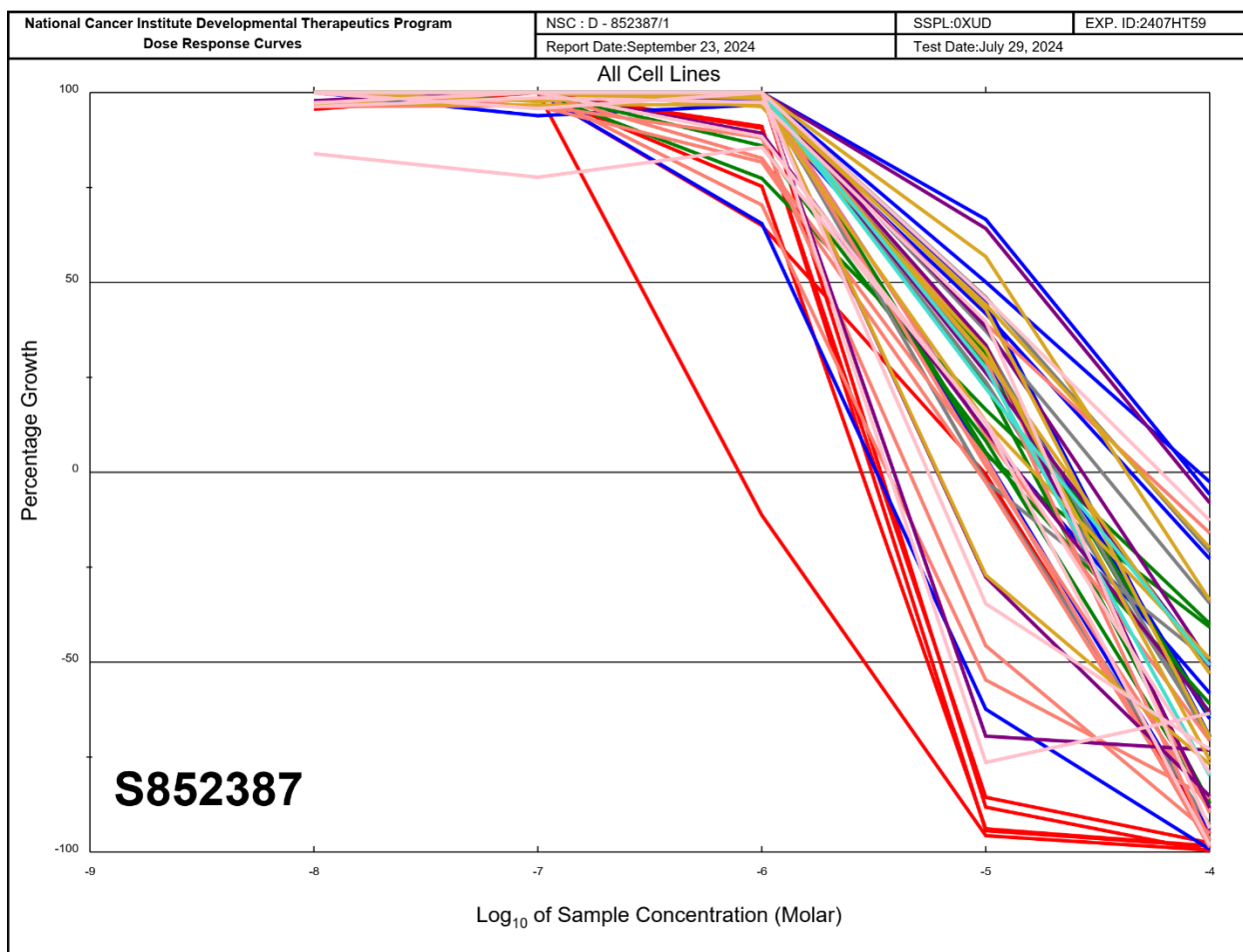
NSC : D - 852387 / 1			Experiment ID : 2407HT59										Test Type : HTS			Units : Molar	
Report Date : September 23, 2024			Test Date : July 29, 2024										QNS :			MC :	
COMI : HA-H			Stain Reagent :										SSPL : 0XUD				
Log10 Concentration																	
Panel/Cell Line	Time Zero	Ctrl	-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0	GI50	TGI	LC50		
Leukemia																	
CCRF-CEM	0.676	4.761	4.980	4.965	4.383	0.097	0.016	105	105	91	-86	-98	* 1.70E-6	* 3.27E-6	* 6.28E-6		
HL-60(TB)	0.587	3.503	4.042	3.969	3.248	0.033	0.009	118	116	91	-94	-98	* 1.67E-6	* 3.10E-6	* 5.76E-6		
K-562	0.506	7.319	7.000	7.688	4.938	0.565	0.025	96	105	65	-1	-95	* 1.69E-6	* 9.83E-6	* 3.34E-5		
MOLT-4	0.700	3.692	4.228	4.270	2.953	0.043	0.012	118	119	75	-94	-98	* 1.41E-6	* 2.79E-6	* 5.50E-6		
RPMI-8226	4.400	9.354	10.618	10.396	9.562	0.521	0.007	126	120	105	-88	-100	* 1.92E-6	* 3.49E-6	* 6.34E-6		
SR	0.057	0.586	0.721	0.639	0.051	0.002	0.000	125	110	-11	-96	-100	* 3.13E-7	* 8.07E-7	* 2.88E-6		
Non-Small Cell Lung Cancer																	
A549/ATCC	0.612	4.598	4.722	4.815	4.761	2.609	0.596	103	105	104	50	-3	* 1.00E-5	* 8.95E-5	> 1.00E-4		
EKVX	2.594	7.668	8.443	8.647	7.540	4.714	2.002	115	119	98	42	-23	* 7.14E-6	* 4.44E-5	> 1.00E-4		
HOP-62	1.049	3.493	3.725	3.937	3.652	1.822	0.379	110	118	106	32	-64	* 5.68E-6	* 2.14E-5	* 7.16E-5		
HOP-92	8.768	10.439	11.800	11.856	11.348	8.863	3.666	182	185	155	10	-58	* 5.31E-6	* 1.40E-5	* 7.59E-5		
NCI-H226	6.508	13.787	15.354	15.426	14.808	9.773	1.978	121	123	114	45	-70	* 8.39E-6	* 2.46E-5	* 6.74E-5		
NCI-H23	4.317	11.617	11.884	11.178	11.396	6.417	1.515	104	94	97	29	-65	* 4.88E-6	* 2.03E-5	* 6.93E-5		
NCI-H322M	4.446	12.114	13.869	13.931	13.620	9.555	4.185	123	124	120	67	-6	* 1.70E-5	* 8.30E-5	> 1.00E-4		
NCI-H460	1.246	19.071	20.168	19.852	18.806	1.925	0.075	106	104	98	4	-94	* 3.25E-6	* 1.09E-5	* 3.55E-5		
NCI-H522	3.641	9.084	9.771	9.639	7.201	1.368	0.024	113	110	66	-62	-99	* 1.32E-6	* 3.25E-6	* 7.99E-6		
Colon Cancer																	
COLO 205	1.187	4.822	5.388	5.424	5.553	1.380	0.463	116	117	120	5	-61	* 4.08E-6	* 1.20E-5	* 6.83E-5		
HCC-2998	1.982	5.532	6.460	7.681	6.053	2.978	0.712	126	161	115	28	-64	* 5.58E-6	* 2.02E-5	* 7.04E-5		
HCT-116	0.434	4.693	5.188	5.154	4.884	1.414	0.056	112	111	104	23	-87	* 4.66E-6	* 1.62E-5	* 4.61E-5		
HCT-15	1.389	12.446	12.122	12.618	9.949	3.213	0.834	97	102	77	16	-40	* 2.82E-6	* 1.96E-5	> 1.00E-4		
HT29	0.630	5.181	5.719	5.706	5.520	0.835	0.373	112	112	107	5	-41	* 3.62E-6	* 1.26E-5	> 1.00E-4		
KM12	0.537	3.078	3.578	3.456	2.720	0.749	0.068	120	115	86	8	-87	* 2.90E-6	* 1.22E-5	* 4.07E-5		
SW-620	0.598	4.140	4.621	4.695	4.251	1.712	0.180	114	116	103	32	-70	* 5.51E-6	* 2.04E-5	* 6.37E-5		
CNS Cancer																	
SF-268	0.654	2.159	2.354	2.402	2.189	1.159	0.192	113	116	102	34	-71	* 5.75E-6	* 2.10E-5	* 6.33E-5		
SF-295	1.921	4.457	4.618	4.601	4.649	1.879	0.965	106	106	108	-2	-50	* 3.34E-6	* 9.52E-6	> 1.00E-4		
SF-539	3.656	13.363	14.313	14.141	14.051	3.709	0.260	110	108	107	-2	-93	* 3.32E-6	* 9.51E-6	* 3.36E-5		
SNB-19	1.925	4.855	5.276	5.379	5.267	3.275	1.521	114	118	114	46	-21	* 8.76E-6	* 4.87E-5	> 1.00E-4		
SNB-75	1.257	2.362	2.581	2.594	2.366	1.669	0.823	120	121	100	37	-34	* 6.26E-6	* 3.30E-5	> 1.00E-4		
U251	0.750	3.962	4.490	4.435	4.294	1.517	0.230	117	115	110	24	-69	* 4.99E-6	* 1.80E-5	* 6.20E-5		
Melanoma																	
LOX IMVI	0.607	3.631	3.857	3.908	3.825	1.496	0.018	107	109	106	29	-97	* 5.40E-6	* 1.71E-5	* 4.25E-5		
MALME-3M	6.325	8.983	9.280	9.519	9.191	6.371	0.693	111	120	108	2	-89	* 3.50E-6	* 1.04E-5	* 3.71E-5		
M14	4.271	12.275	13.258	13.768	12.277	5.057	1.253	112	119	100	10	-71	* 3.59E-6	* 1.32E-5	* 5.54E-5		
MDA-MB-435	1.473	4.841	5.247	5.190	3.844	0.667	0.209	112	110	70	-55	-86	* 1.46E-6	* 3.65E-6	* 9.17E-6		
SK-MEL-2	2.519	5.641	5.527	5.534	5.269	1.367	0.123	96	97	88	-46	-95	* 1.93E-6	* 4.55E-6	* 1.22E-5		
SK-MEL-28	1.431	3.390	3.669	3.598	3.709	2.197	1.202	114	111	116	39	-16	* 7.23E-6	* 5.12E-5	> 1.00E-4		
SK-MEL-5	3.825	11.835	12.365	11.540	10.377	3.722	0.126	107	96	82	-3	-97	* 2.37E-6	* 9.30E-6	* 3.19E-5		
UACC-257	3.486	7.413	8.015	8.283	7.729	4.771	0.358	115	122	108	33	-90	* 5.89E-6	* 1.85E-5	* 4.74E-5		
UACC-62	0.739	3.130	3.449	3.303	2.716	0.825	0.009	113	107	83	4	-99	* 2.59E-6	* 1.08E-5	* 3.34E-5		
Ovarian Cancer																	
IGROV1	1.018	3.274	3.719	3.704	3.472	1.880	0.505	120	119	109	38	-50	* 6.82E-6	* 2.70E-5	* 9.89E-5		
OVCA-3	4.654	18.797	20.903	21.033	19.292	3.372	0.684	115	116	104	-28	-85	* 2.56E-6	* 6.16E-6	* 2.45E-5		
OVCA-4	5.328	9.515	10.894	10.879	10.026	6.426	2.602	133	133	112	26	-51	* 5.29E-6	* 2.18E-5	* 9.66E-5		
OVCA-5	6.474	14.864	15.972	16.062	15.468	11.862	5.951	113	114	107	64	-8	* 1.57E-5	* 7.73E-5	> 1.00E-4		
OVCA-8	0.673	3.741	4.224	3.984	3.788	1.701	0.078	116	108	102	34	-88	* 5.73E-6	* 1.88E-5	* 4.84E-5		
NCI/ADR-RES	3.746	11.148	12.620	12.555	11.716	1.142	1.006	120	119	108	-70	-73	* 2.12E-6	* 4.05E-6	* 7.76E-6		
SK-OV-3	2.611	9.944	9.752	10.985	9.153	3.398	0.960	98	114	89	11	-63	* 3.18E-6	* 1.40E-5	* 6.63E-5		
Renal Cancer																	
786-0	1.778	6.542	6.403	6.386	6.393	2.418	0.904	97	97	97	13	-49	* 3.65E-6	* 1.64E-5	> 1.00E-4		
A498	1.927	7.664	8.097	8.171	7.607	3.657	0.905	108	109	99	30	-53	* 5.15E-6	* 2.30E-5	* 9.20E-5		
ACHN	1.537	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CAKI-1	1.045	4.222	4.474	4.524	4.105	2.074	0.253	108	110	96	32	-76	* 5.30E-6	* 1.99E-5	* 5.78E-5		
RXF 393	1.802	3.132	3.165	3.102	3.188	1.314	0.416	103	98	104	-27	-77	* 2.58E-6	* 6.22E-6	* 2.88E-5		
SN12C	0.623	2.414	2.484	2.567	2.536	1.392	0.188	104	109	107	43	-70	* 7.75E-6	* 2.40E-5	* 6.66E-5		
TK-10	6.290	17.260	18.161	18.438	18.106	12.515	4.169	108	111	108	57	-34	* 1.19E-5	* 4.24E-5	> 1.00E-4		
UO-31	1.550	5.913	6.041	5.936	5.845	3.479	1.242	103	101	98	44	-20	* 7.82E-6	* 4.89E-5	> 1.00E-4		
Prostate Cancer																	
PC-3	3.978	11.159	12.855	12.664	11.706	5.949	0.799	124	121	108	28	-80	* 5.23E-6	* 1.80E-5	* 5.27E-5		
DU-145	0.636	3.766	4.127	4.060	3.911	1.328	0.313	112	109	105	22	-51	* 4.60E-6	* 2.01E-5	* 9.74E-5		
Breast Cancer																	
MCF7	2.550	16.169	13.962	13.140	14.217	4.366	0.527	84	78	86	13	-79	* 3.11E-6	* 1.39E-5	* 4.82E-5		
MDA-MB-231/ATCC	5.261	12.044	12.870	12.802	12.101	8.371	4.595	112	111	101	46	-13	* 8.40E-6	* 6.08E-5	> 1.00E-4		
HS 578T	1.006	2.636	2.582	2.657	2.726	0.658	0.272	97	102	105	-35	-73	* 2.48E-6	* 5.65E-6	* 2.52E-5		
BT-549	3.822	8.395	9.468	9.695	7.865	4.414	0.068	123	128	88	13	-98	* 3.23E-6	* 1.31E-5	* 3.68E-5		
T-47D	5.838	11.611	11.401	11.528	11.462	8.132	0.364	96	99	97	40	-94	* 6.63E-6	* 1.98E-5	* 4.70E-5		
MDA-MB-468	6.310	10.765	10.756	10.586	10.830	1.490	2.304	100	96	102	-76	-64	* 1.95E-6	* 3.73E-6	* 7.11E-6		



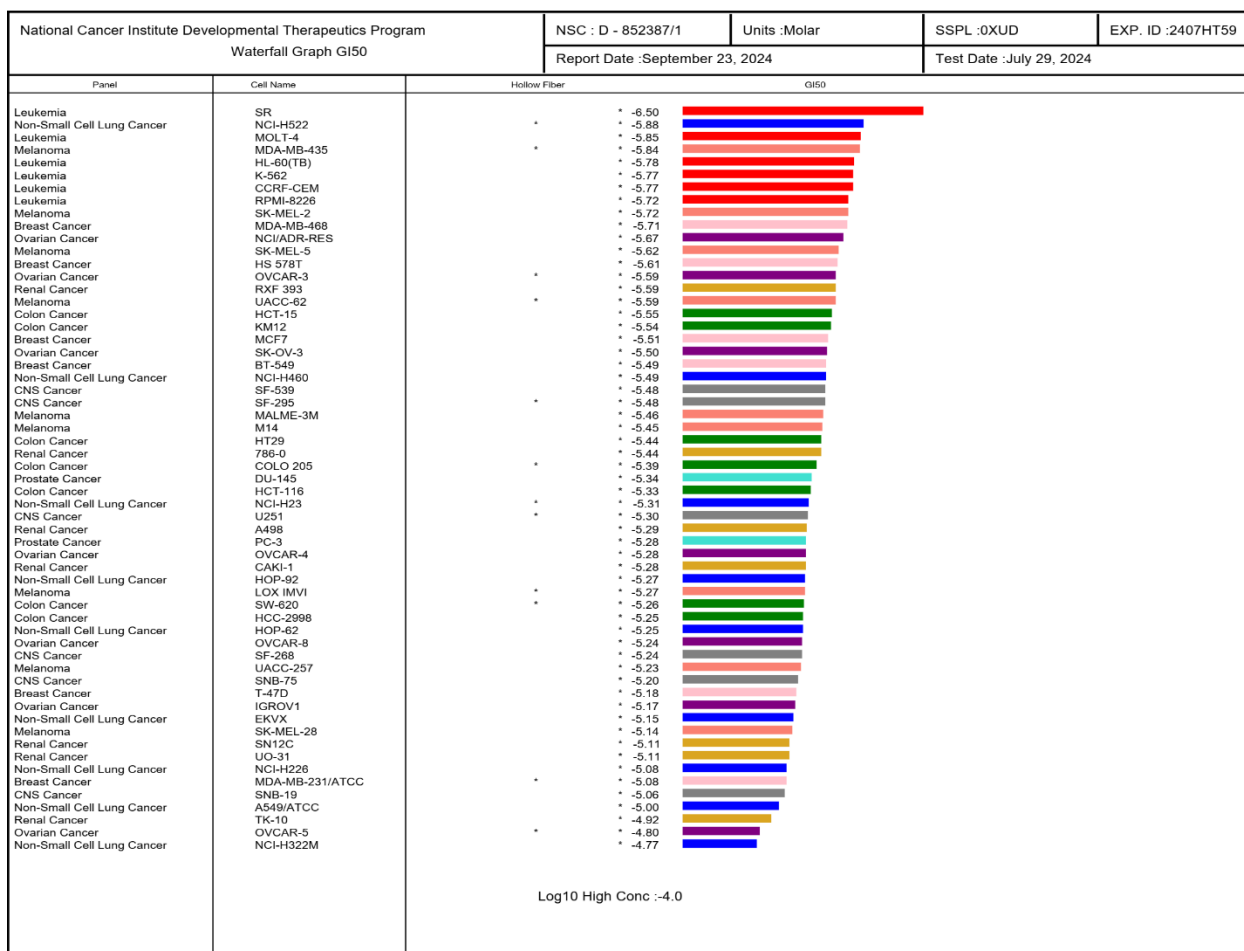
NCI five dose results of compound **11a**



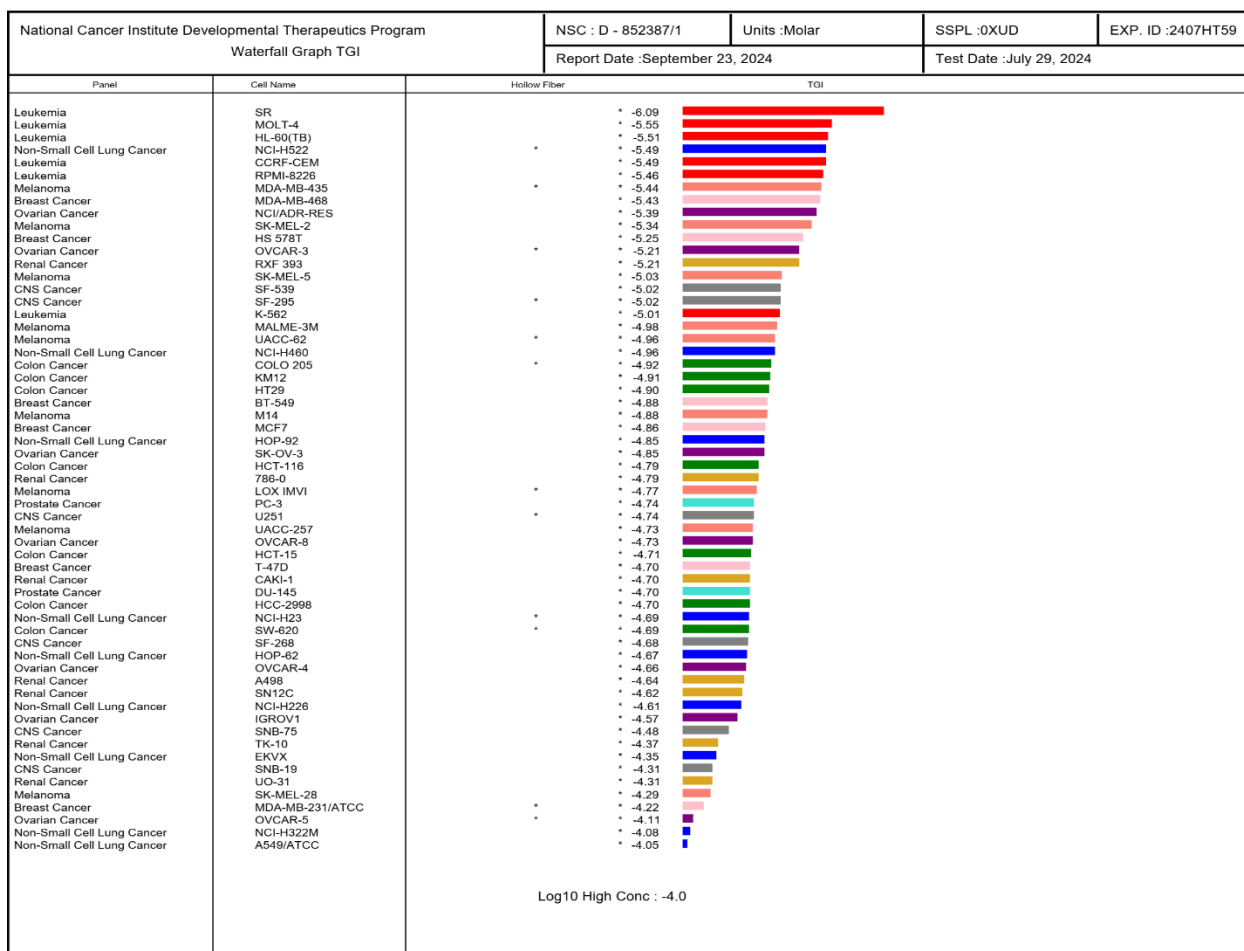
NCI five dose results of compound 11a



NCI five dose results of compound **11a**



NCI five dose results of compound **11a**



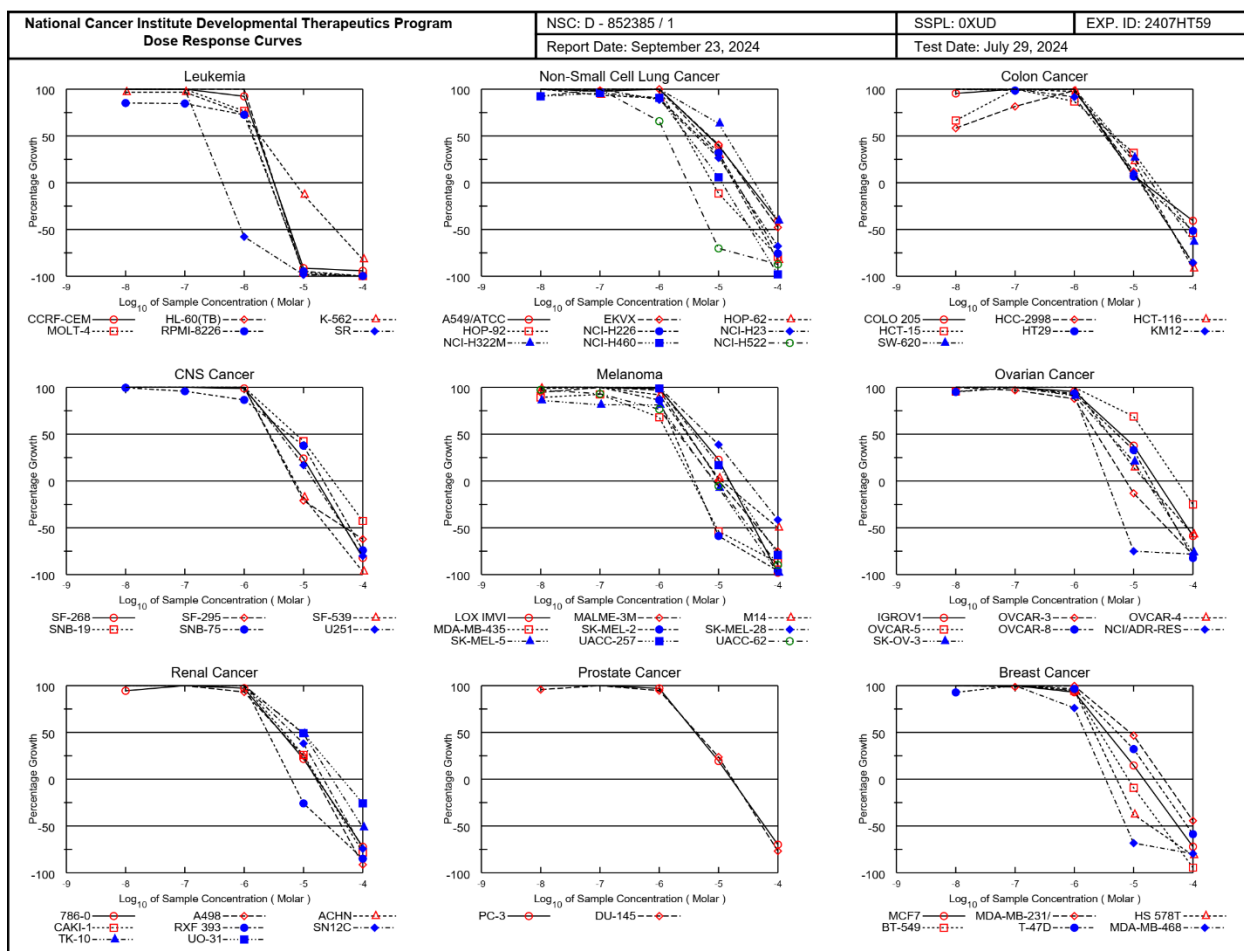
NCI five dose results of compound **11a**

National Cancer Institute Developmental Therapeutics Program		NSC : D - 852387/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT59	
Waterfall Graph LC50		Report Date :September 23, 2024				Test Date :July 29, 2024			
Panel	Cell Name	Hollow Fiber	LC50						
Leukemia	SR	*	-5.54						
Leukemia	MOLT-4	*	-5.26						
Leukemia	HL-60(TB)	*	-5.24						
Leukemia	CCRF-CEM	*	-5.20						
Leukemia	RPMI-8226	*	-5.20						
Breast Cancer	MDA-MB-468	*	-5.15						
Ovarian Cancer	NCI/ADR-RES	*	-5.11						
Non-Small Cell Lung Cancer	NCI-H522	*	-5.10						
Melanoma	MDA-MB-435	*	-5.04						
Melanoma	SK-MEL-2	*	-4.91						
Ovarian Cancer	OVCAR-3	*	-4.61						
Breast Cancer	HS 578T	*	-4.60						
Renal Cancer	RXF 393	*	-4.54						
Melanoma	SK-MEL-5	*	-4.50						
Melanoma	UACC-62	*	-4.48						
Leukemia	K-562	*	-4.48						
CNS Cancer	SF-539	*	-4.47						
Non-Small Cell Lung Cancer	NCI-H460	*	-4.45						
Breast Cancer	BT-549	*	-4.43						
Melanoma	MALME-3M	*	-4.43						
Colon Cancer	KM12	*	-4.39						
Melanoma	LOX IMVI	*	-4.37						
Colon Cancer	HCT-116	*	-4.34						
Breast Cancer	T-47D	*	-4.33						
Melanoma	UACC-257	*	-4.32						
Breast Cancer	MCF7	*	-4.32						
Ovarian Cancer	OVCAR-8	*	-4.32						
Prostate Cancer	PC-3	*	-4.28						
Melanoma	M14	*	-4.26						
Renal Cancer	CAKI-1	*	-4.24						
CNS Cancer	U251	*	-4.21						
CNS Cancer	SF-268	*	-4.20						
Colon Cancer	SW-620	*	-4.20						
Ovarian Cancer	SK-OV-3	*	-4.18						
Renal Cancer	SN12C	*	-4.18						
Non-Small Cell Lung Cancer	NCI-H226	*	-4.17						
Colon Cancer	COLO 205	*	-4.17						
Non-Small Cell Lung Cancer	NCI-H23	*	-4.16						
Colon Cancer	HCC-2998	*	-4.15						
Non-Small Cell Lung Cancer	HOP-62	*	-4.14						
Non-Small Cell Lung Cancer	HOP-92	*	-4.12						
Renal Cancer	A498	*	-4.04						
Ovarian Cancer	OVCAR-4	*	-4.02						
Prostate Cancer	DU-145	*	-4.01						
Ovarian Cancer	IGROV1	*	-4.00						
Non-Small Cell Lung Cancer	AS49/ATCC	*	> -4.00						
Non-Small Cell Lung Cancer	EKVX	*	> -4.00						
Non-Small Cell Lung Cancer	NCI-H322M	*	> -4.00						
Colon Cancer	HCT-15	*	> -4.00						
Colon Cancer	HT29	*	> -4.00						
CNS Cancer	SF-295	*	> -4.00						
CNS Cancer	SNB-19	*	> -4.00						
CNS Cancer	SNB-75	*	> -4.00						
Melanoma	SK-MEL-28	*	> -4.00						
Ovarian Cancer	OVCAR-5	*	> -4.00						
Renal Cancer	786-O	*	> -4.00						
Renal Cancer	TK-10	*	> -4.00						
Renal Cancer	UO-31	*	> -4.00						
Breast Cancer	MDA-MB-231/ATCC	*	> -4.00						
Log10 High Conc : -4.0									

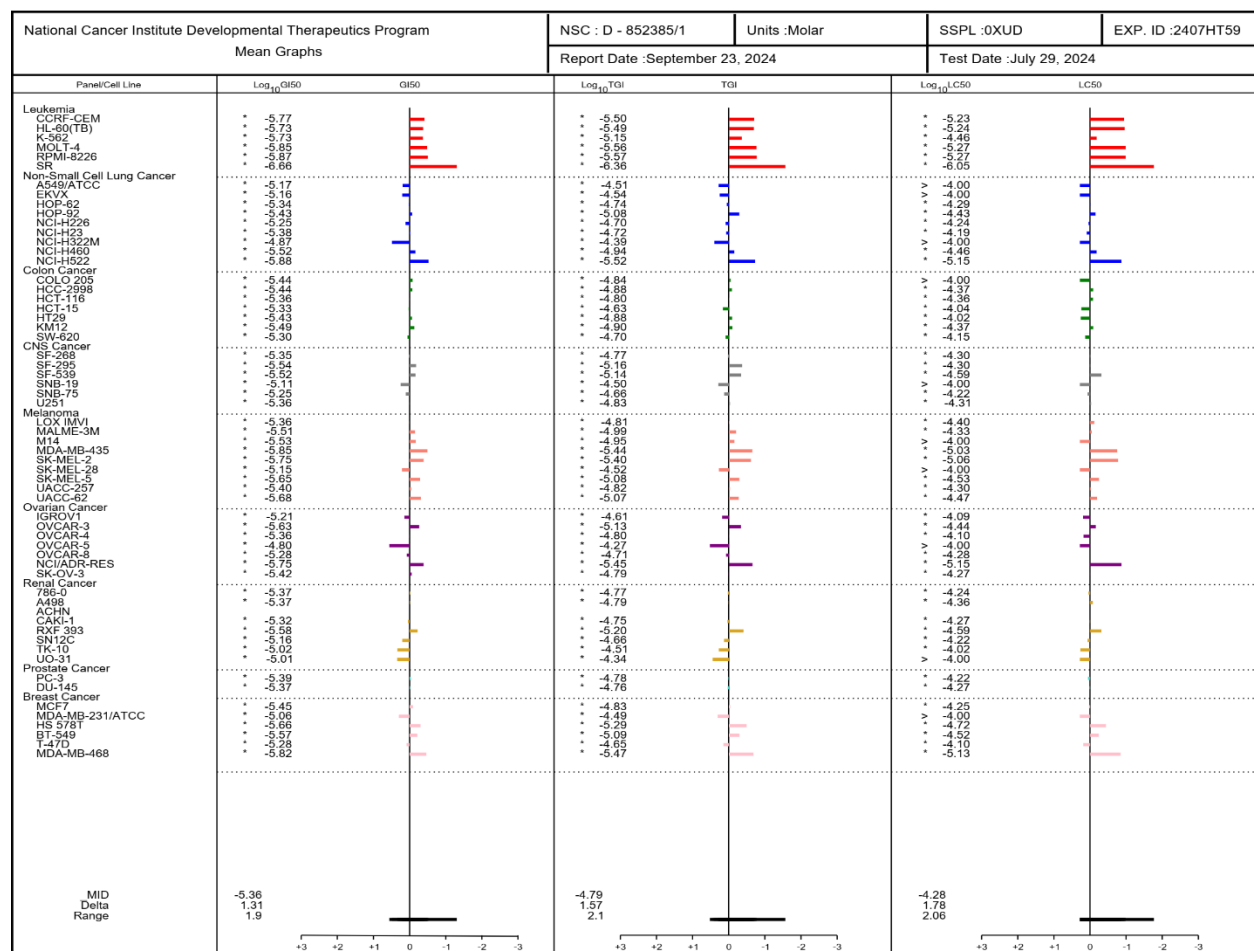
NCI five dose results of compound **11a**

National Cancer Institute Developmental Therapeutics Program In-Vitro Testing Results

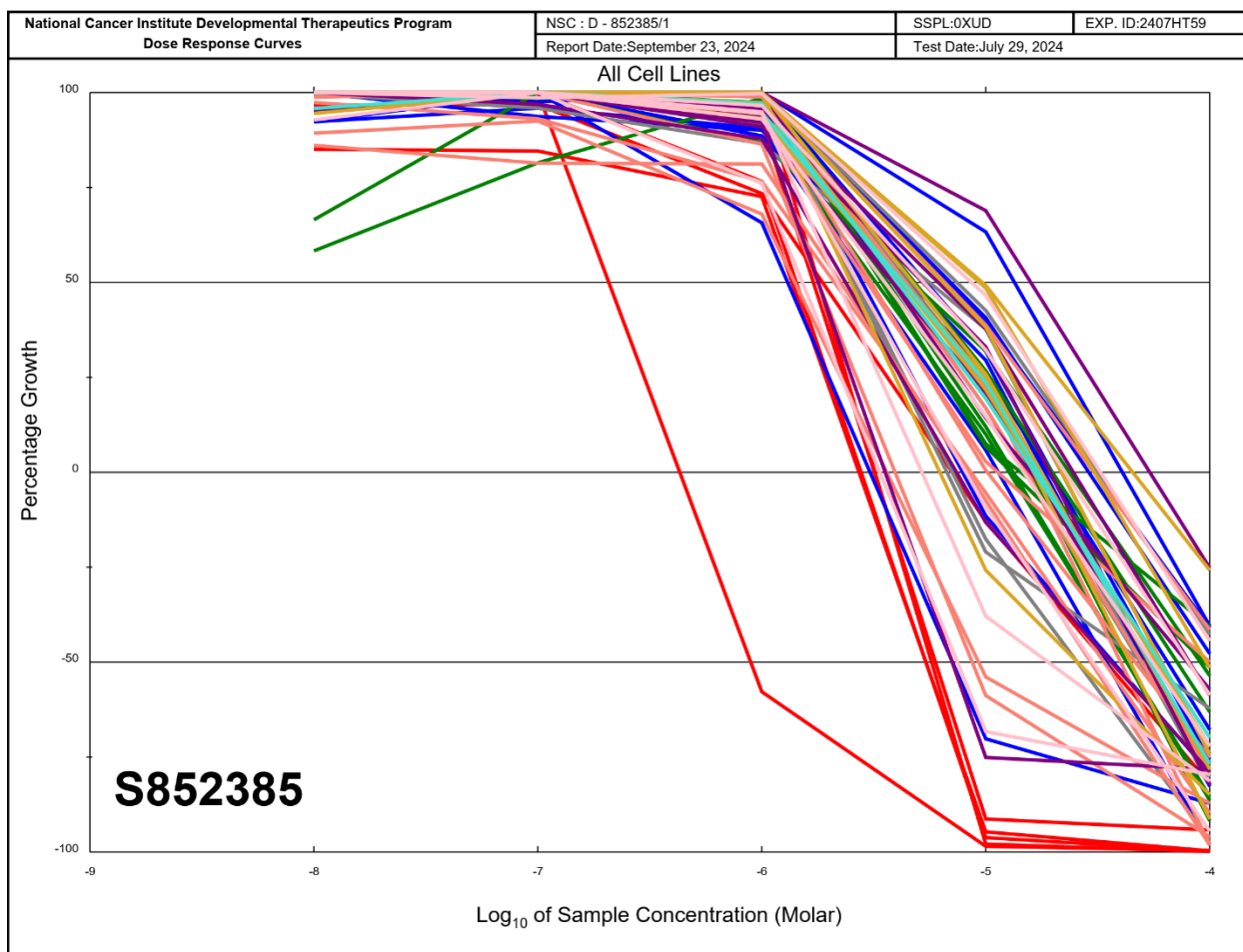
NSC : D - 852385 / 1			Experiment ID : 2407HT59										Test Type : HTS		Units : Molar	
Report Date : September 23, 2024			Test Date : July 29, 2024										QNS :		MC :	
COMI : FA-H			Stain Reagent :										SSPL : 0XUD			
Panel/Cell Line	Time Zero	Ctrl	Log10 Concentration										GI50	TGI	LC50	
			Mean Optical Densities	Percent Growth												
			-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0				
Leukemia																
CCRF-CEM	0.676	4.761	4.951	4.818	4.443	0.058	0.039	105	101	92	-91	-94	* 1.70E-6	* 3.18E-6	* 5.95E-6	
HL-60(TB)	0.587	3.503	3.734	3.875	3.600	0.013	0.001	108	113	104	-98	-100	* 1.84E-6	* 3.27E-6	* 5.79E-6	
K-562	0.506	7.319	7.101	7.091	5.500	0.441	0.091	97	97	73	-13	-82	* 1.87E-6	* 7.09E-6	* 3.44E-5	
MOLT-4	0.700	3.692	4.178	4.277	2.992	0.026	0.001	116	120	77	-96	-100	* 1.43E-6	* 2.78E-6	* 5.40E-6	
RPMI-8226	4.400	9.354	8.587	8.620	8.068	0.234	0.014	85	85	73	-95	-100	* 1.36E-6	* 2.72E-6	* 5.41E-6	
SR	0.057	0.586	0.660	0.611	0.024	0.001	0.000	114	105	-58	-98	-100	* 2.17E-7	* 4.41E-7	* 8.95E-7	
Non-Small Cell Lung Cancer																
A549/ATCC	0.612	4.598	4.770	4.501	4.708	2.188	0.361	104	98	103	40	-41	* 6.83E-6	* 3.10E-5	> 1.00E-4	
EKVX	2.594	7.668	8.052	7.587	7.668	4.652	1.354	108	99	100	41	-48	* 6.96E-6	* 2.88E-5	> 1.00E-4	
HOP-62	1.049	3.493	3.576	3.339	3.250	1.770	0.182	103	94	90	30	-83	* 4.59E-6	* 1.83E-5	* 5.11E-5	
HOP-92	8.768	10.439	11.258	11.443	10.930	7.761	1.822	150	160	130	-12	-79	* 3.68E-6	* 8.30E-6	* 3.70E-5	
NCI-H226	6.508	13.787	14.695	14.602	14.197	8.820	1.587	112	111	106	32	-76	* 5.67E-6	* 1.98E-5	* 5.77E-5	
NCI-H23	4.317	11.617	11.057	11.822	10.787	6.255	1.389	92	103	89	26	-68	* 4.19E-6	* 1.91E-5	* 6.47E-5	
NCI-H322M	4.446	12.114	13.029	12.800	13.029	9.296	2.645	112	109	112	63	-40	* 1.34E-5	* 4.07E-5	> 1.00E-4	
NCI-H460	1.246	19.071	17.695	18.334	17.402	2.283	0.025	92	96	91	6	-98	* 3.01E-6	* 1.14E-5	* 3.45E-5	
NCI-H522	3.641	9.084	9.621	9.672	7.198	1.085	0.468	110	111	66	-70	-87	* 1.30E-6	* 3.04E-6	* 7.10E-6	
Colon Cancer																
COLO 205	1.187	4.822	4.656	4.832	4.945	1.460	0.704	95	100	103	8	-41	* 3.60E-6	* 1.43E-5	> 1.00E-4	
HCC-2998	1.982	5.532	4.052	4.876	5.480	2.410	0.270	58	82	98	12	-86	* 3.64E-6	* 1.33E-5	* 4.27E-5	
HCT-116	0.434	4.693	5.188	4.790	4.581	1.411	0.035	112	102	97	23	-92	* 4.33E-6	* 1.58E-5	* 4.32E-5	
HCT-15	1.389	12.446	8.739	13.724	10.987	4.918	0.645	66	112	87	32	-54	* 4.68E-6	* 2.36E-5	* 9.09E-5	
HT29	0.630	5.181	5.194	5.111	5.553	0.935	0.306	100	98	108	7	-51	* 3.75E-6	* 1.31E-5	* 9.48E-5	
KM12	0.537	3.078	3.095	3.172	2.862	0.790	0.079	101	104	92	10	-85	* 3.23E-6	* 1.27E-5	* 4.26E-5	
SW-620	0.598	4.140	4.364	4.498	4.280	1.543	0.221	106	110	104	27	-63	* 4.99E-6	* 1.98E-5	* 7.14E-5	
CNS Cancer																
SF-268	0.654	2.159	2.217	2.235	2.143	1.016	0.116	104	105	99	24	-82	* 4.50E-6	* 1.68E-5	* 4.97E-5	
SF-295	1.921	4.457	4.581	4.590	4.731	1.518	0.727	105	105	111	-21	-62	* 2.89E-6	* 6.93E-6	* 5.06E-5	
SF-539	3.656	13.363	14.809	14.563	14.494	3.011	0.112	115	112	112	-18	-97	* 3.00E-6	* 7.30E-6	* 2.56E-5	
SNB-19	1.925	4.855	5.141	5.215	5.088	3.172	1.102	110	112	108	43	-43	* 7.70E-6	* 3.16E-5	> 1.00E-4	
SNB-75	1.257	2.362	2.356	2.319	2.216	1.674	0.325	100	96	87	38	-74	* 5.59E-6	* 2.17E-5	* 6.08E-5	
U251	0.750	3.962	4.189	4.351	4.220	1.295	0.150	107	112	108	17	-80	* 4.33E-6	* 1.49E-5	* 4.90E-5	
Melanoma																
LOX IMVI	0.607	3.631	3.974	4.002	3.601	1.293	0.012	111	112	99	23	-98	* 4.39E-6	* 1.54E-5	* 4.00E-5	
MALME-3M	6.325	8.983	8.839	9.021	8.908	6.334	1.568	95	101	97	1	-75	* 3.08E-6	* 1.02E-5	* 4.65E-5	
M14	4.271	12.275	12.176	12.446	11.637	4.497	2.136	99	102	92	3	-50	* 2.96E-6	* 1.13E-5	> 1.00E-4	
MDA-MB-435	1.473	4.841	4.480	4.587	3.761	0.679	0.189	89	92	68	-54	-87	* 1.40E-6	* 3.61E-6	* 9.30E-6	
SK-MEL-2	2.519	5.641	5.656	5.722	5.217	1.038	0.101	100	103	86	-59	-96	* 1.78E-6	* 3.94E-6	* 8.70E-6	
SK-MEL-28	1.431	3.390	3.615	3.669	3.647	2.190	0.837	111	114	113	39	-42	* 7.06E-6	* 3.04E-5	> 1.00E-4	
SK-MEL-5	3.825	11.835	10.726	10.337	10.330	3.542	0.069	86	81	81	-7	-98	* 2.25E-6	* 8.25E-6	* 2.95E-5	
UACC-257	3.486	7.413	7.841	7.918	7.372	4.149	0.728	111	113	99	17	-79	* 3.95E-6	* 1.50E-5	* 4.97E-5	
UACC-62	0.739	3.130	3.068	2.966	2.571	0.699	0.075	97	93	77	-5	-90	* 2.11E-6	* 8.58E-6	* 3.38E-5	
Ovarian Cancer																
IGROV1	1.018	3.274	3.599	3.376	3.173	1.868	0.419	114	105	96	38	-59	* 6.13E-6	* 2.46E-5	* 8.10E-5	
OVCA-3	4.654	18.797	19.037	18.362	17.077	4.038	0.983	102	97	88	-13	-79	* 2.37E-6	* 7.40E-6	* 3.63E-5	
OVCA-4	5.328	9.515	10.482	10.493	10.133	5.928	2.281	123	123	115	14	-57	* 4.41E-6	* 1.59E-5	* 7.93E-5	
OVCA-5	6.474	14.864	14.489	15.307	15.164	12.252	4.845	96	105	104	69	-25	* 1.59E-5	* 5.40E-5	> 1.00E-4	
OVCA-8	0.673	3.741	3.592	3.864	3.542	1.686	0.119	95	104	94	33	-82	* 5.24E-6	* 1.93E-5	* 5.25E-5	
NCI/ADR-RES	3.746	11.148	11.677	11.977	10.568	0.932	0.816	107	111	92	-75	-78	* 1.79E-6	* 3.55E-6	* 7.08E-6	
SK-OV-3	2.611	9.944	10.846	11.977	9.241	4.131	0.611	112	128	91	21	-77	* 3.84E-6	* 1.64E-5	* 5.33E-5	
Renal Cancer																
786-0	1.778	6.542	6.272	6.629	6.409	2.814	0.495	94	102	97	22	-72	* 4.22E-6	* 1.70E-5	* 5.81E-5	
A498	1.927	7.664	8.125	8.609	7.274	3.347	0.168	108	117	93	25	-91	* 4.28E-6	* 1.64E-5	* 4.41E-5	
ACHN	1.537	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CAKI-1	1.045	4.222	4.434	4.410	4.278	1.867	0.228	107	106	102	26	-78	* 4.81E-6	* 1.77E-5	* 5.36E-5	
RXF 393	1.802	3.132	3.345	3.306	3.204	1.337	0.273	116	113	105	-26	-85	* 2.64E-6	* 6.36E-6	* 2.57E-5	
SN12C	0.623	2.414	2.649	2.684	2.643	1.307	0.160	113	115	113	38	-74	* 6.94E-6	* 2.19E-5	* 6.08E-5	
TK-10	6.290	17.260	19.164	18.230	18.597	11.616	3.049	117	109	112	48	-52	* 9.49E-6	* 3.06E-5	* 9.65E-5	
UO-31	1.550	5.913	6.090	6.117	6.130	3.698	1.150	104	105	105	49	-26	* 9.68E-6	* 4.53E-5	> 1.00E-4	
Prostate Cancer																
PC-3	3.978	11.159	12.116	12.508	10.944	5.378	1.197	113	119	97	19	-70	* 4.04E-6	* 1.65E-5	* 5.98E-5	
DU-145	0.636	3.766	3.635	3.905	3.598	1.377	0.148	96	104	95	24	-77	* 4.26E-6	* 1.72E-5	* 5.41E-5	
Breast Cancer																
MCF7	2.550	16.169	16.709	17.124	15.222	4.551	0.711	104	107	93	15	-72	* 3.54E-6	* 1.48E-5	* 5.56E-5	
MDA-MB-231/ATCC	5.261	12.044	12.330	11.947	12.026	8.423	2.927	104	99	100	47	-44	* 8.65E-6	* 3.25E-5	> 1.00E-4	
HS 578T	1.006	2.636	2.714	2.871	2.581	0.625	0.188	106	115	95	-38	-81	* 2.18E-6	* 5.18E-6	* 1.90E-5	
BT-549	3.822	8.395	8.987	9.451	8.146	3.471	0.208	113	123	94	-9	-94	* 2.69E-6	* 8.15E-6	* 3.01E-5	
T-47D	5.838	11.611	11.192	11.714	11.416	7.693	2.409	93	102	97	32	-59	* 5.29E-6	* 2.26E-5	* 8.01E-5	
MDA-MB-468	6.310	10.765	11.004	10.826	9.686	1.997	1.289	106	102	76	-68	-80	* 1.52E-6	* 3.36E-6	* 7.46E-6	



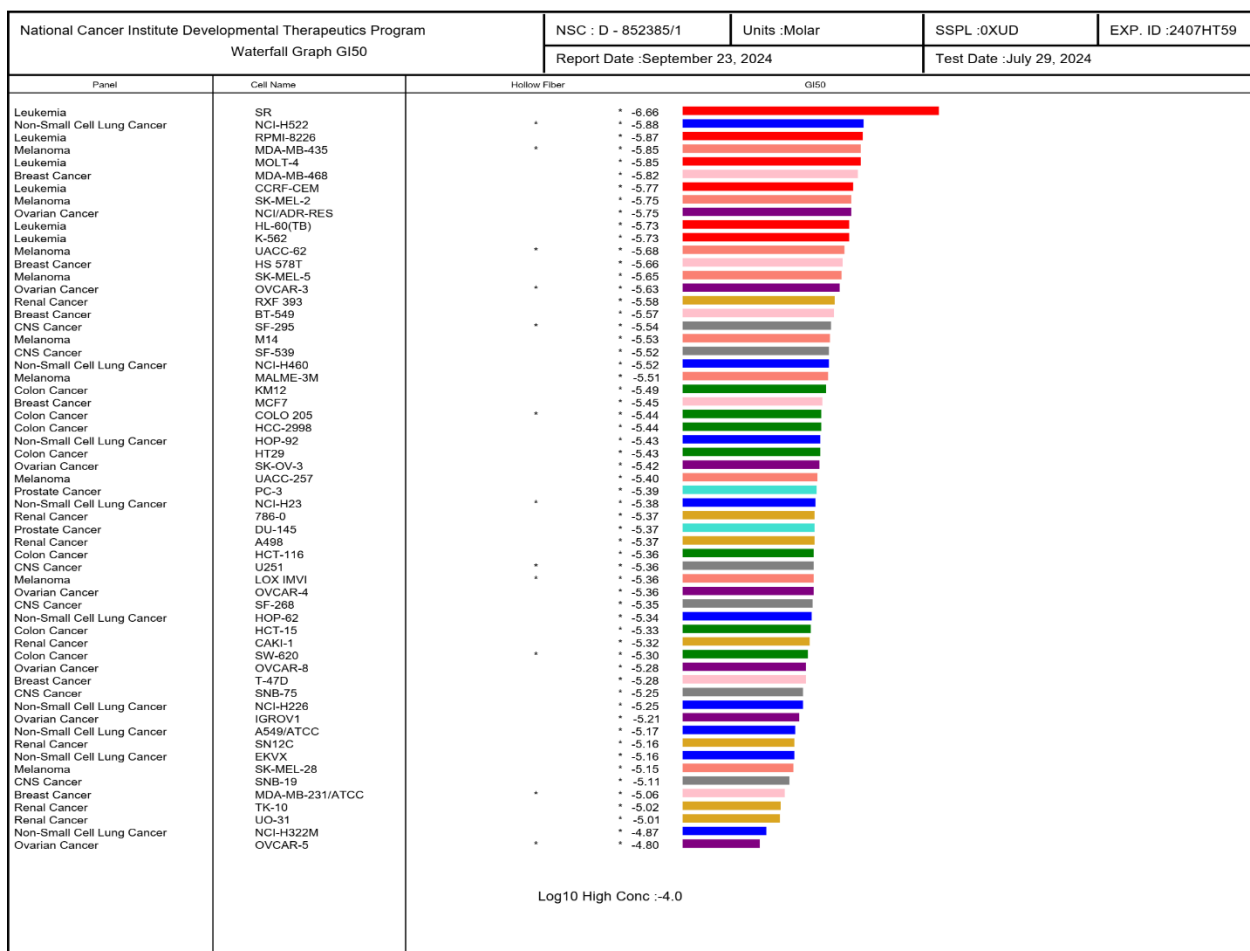
NCI five dose results of compound **11b**



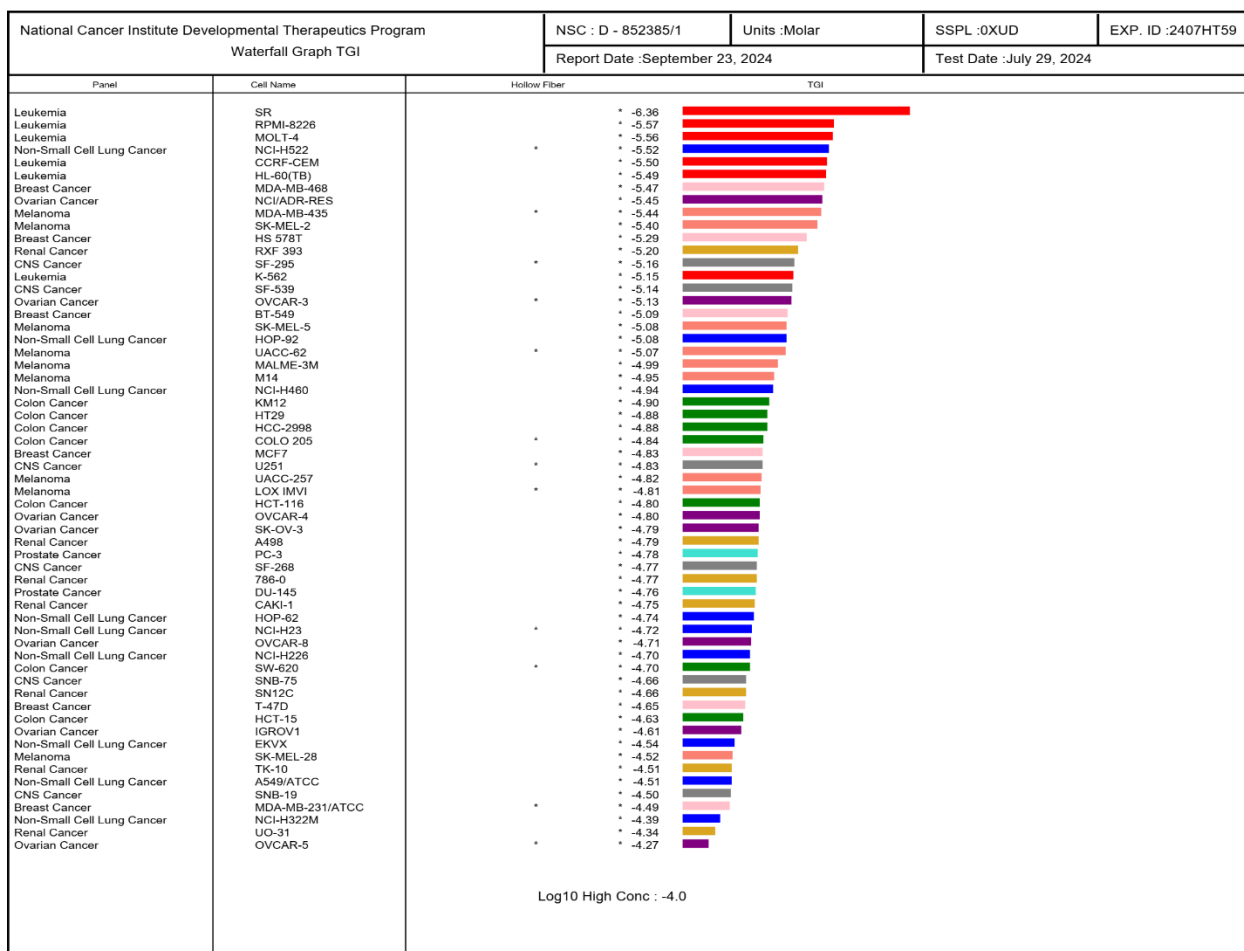
NCI five dose results of compound **11b**



NCI five dose results of compound **11b**



NCI five dose results of compound **11b**



NCI five dose results of compound **11b**

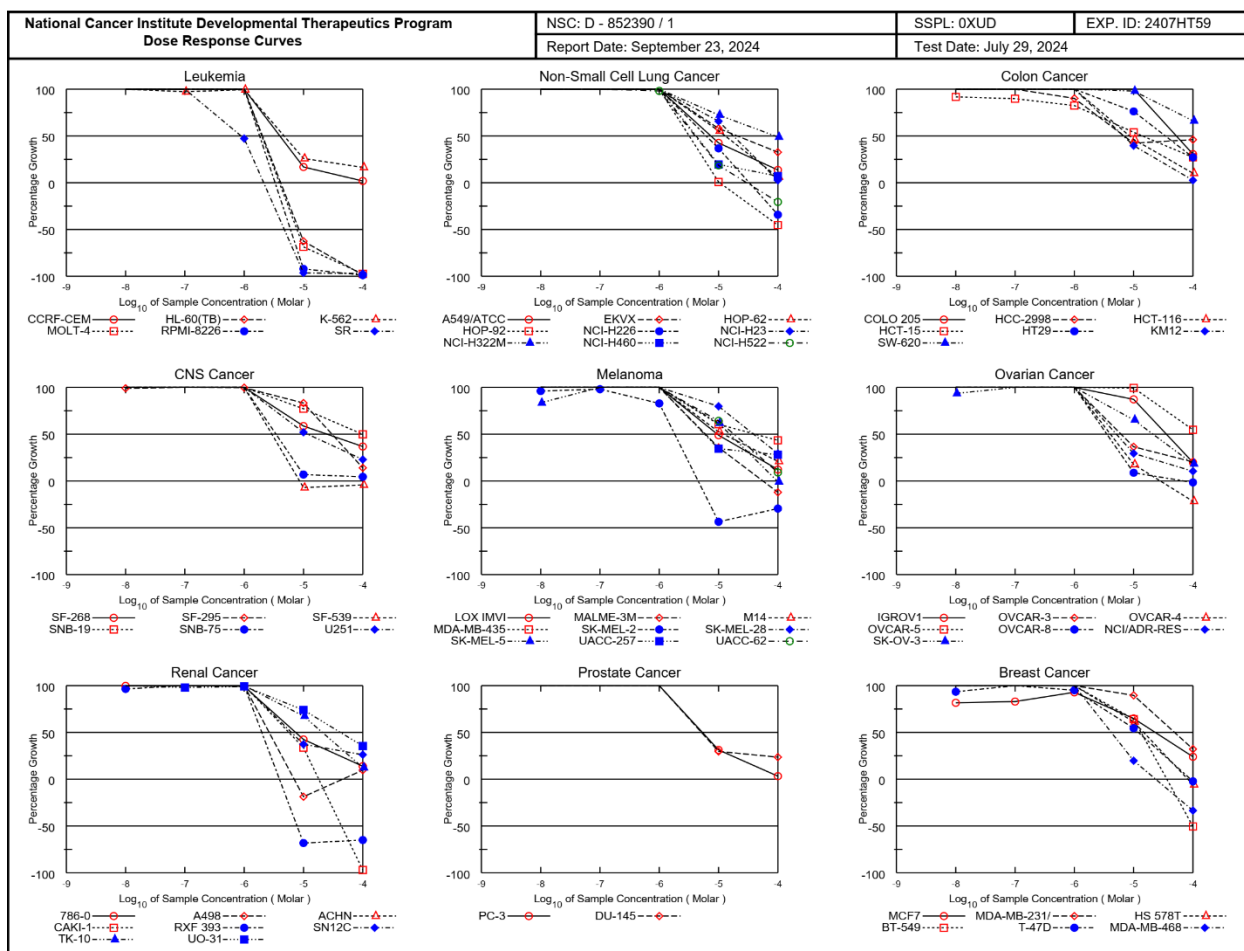
National Cancer Institute Developmental Therapeutics Program		NSC : D - 852385/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT59		
Waterfall Graph LC50		Report Date :September 23, 2024				Test Date :July 29, 2024				
Panel	Cell Name	Hollow Fiber	LC50							
Leukemia	SR	*	-6.05							
Leukemia	MOLT-4	*	-5.27							
Leukemia	RPMI-8226	*	-5.27							
Leukemia	HL-60(TB)	*	-5.24							
Leukemia	CCRF-CEM	*	-5.23							
Ovarian Cancer	NCI/ADR-RES	*	-5.15							
Non-Small Cell Lung Cancer	NCI-H522	*	-5.15							
Breast Cancer	MDA-MB-468	*	-5.13							
Melanoma	SK-MEL-2	*	-5.06							
Melanoma	MDA-MB-435	*	-5.03							
Breast Cancer	HS 578T	*	-4.72							
CNS Cancer	SF-539	*	-4.59							
Renal Cancer	RXF 393	*	-4.59							
Melanoma	SK-MEL-5	*	-4.53							
Breast Cancer	BT-549	*	-4.52							
Melanoma	UACC-62	*	-4.47							
Leukemia	K-562	*	-4.46							
Non-Small Cell Lung Cancer	NCI-H460	*	-4.46							
Ovarian Cancer	OVCAR-3	*	-4.44							
Non-Small Cell Lung Cancer	HOP-92	*	-4.43							
Melanoma	LOX IMVI	*	-4.40							
Colon Cancer	KM12	*	-4.37							
Colon Cancer	HCC-2998	*	-4.37							
Colon Cancer	HCT-116	*	-4.36							
Renal Cancer	A498	*	-4.36							
Melanoma	MALME-3M	*	-4.33							
CNS Cancer	U251	*	-4.31							
CNS Cancer	SF-268	*	-4.30							
Melanoma	UACC-257	*	-4.30							
CNS Cancer	SF-295	*	-4.30							
Non-Small Cell Lung Cancer	HOP-62	*	-4.29							
Ovarian Cancer	OVCAR-8	*	-4.28							
Ovarian Cancer	SK-OV-3	*	-4.27							
Renal Cancer	CAKI-1	*	-4.27							
Prostate Cancer	DU-145	*	-4.27							
Breast Cancer	MCF7	*	-4.25							
Non-Small Cell Lung Cancer	NCI-H226	*	-4.24							
Renal Cancer	786-0	*	-4.24							
Prostate Cancer	PC-3	*	-4.22							
CNS Cancer	SNB-75	*	-4.22							
Renal Cancer	SN12C	*	-4.22							
Non-Small Cell Lung Cancer	NCI-H23	*	-4.19							
Colon Cancer	SW-620	*	-4.15							
Ovarian Cancer	OVCAR-4	*	-4.10							
Breast Cancer	T-47D	*	-4.10							
Ovarian Cancer	IGROV1	*	-4.09							
Colon Cancer	HCT-15	*	-4.04							
Colon Cancer	HT29	*	-4.02							
Renal Cancer	TK-10	*	-4.02							
Non-Small Cell Lung Cancer	A549/ATCC	*	> -4.00							
Non-Small Cell Lung Cancer	EKVX	*	> -4.00							
Non-Small Cell Lung Cancer	NCI-H322M	*	> -4.00							
Colon Cancer	COLO 205	*	> -4.00							
CNS Cancer	SNB-19	*	> -4.00							
Melanoma	M14	*	> -4.00							
Melanoma	SK-MEL-28	*	> -4.00							
Ovarian Cancer	OVCAR-5	*	> -4.00							
Renal Cancer	UO-31	*	> -4.00							
Breast Cancer	MDA-MB-231/ATCC	*	> -4.00							
Log10 High Conc : -4.0										

NCI five dose results of compound **11b**

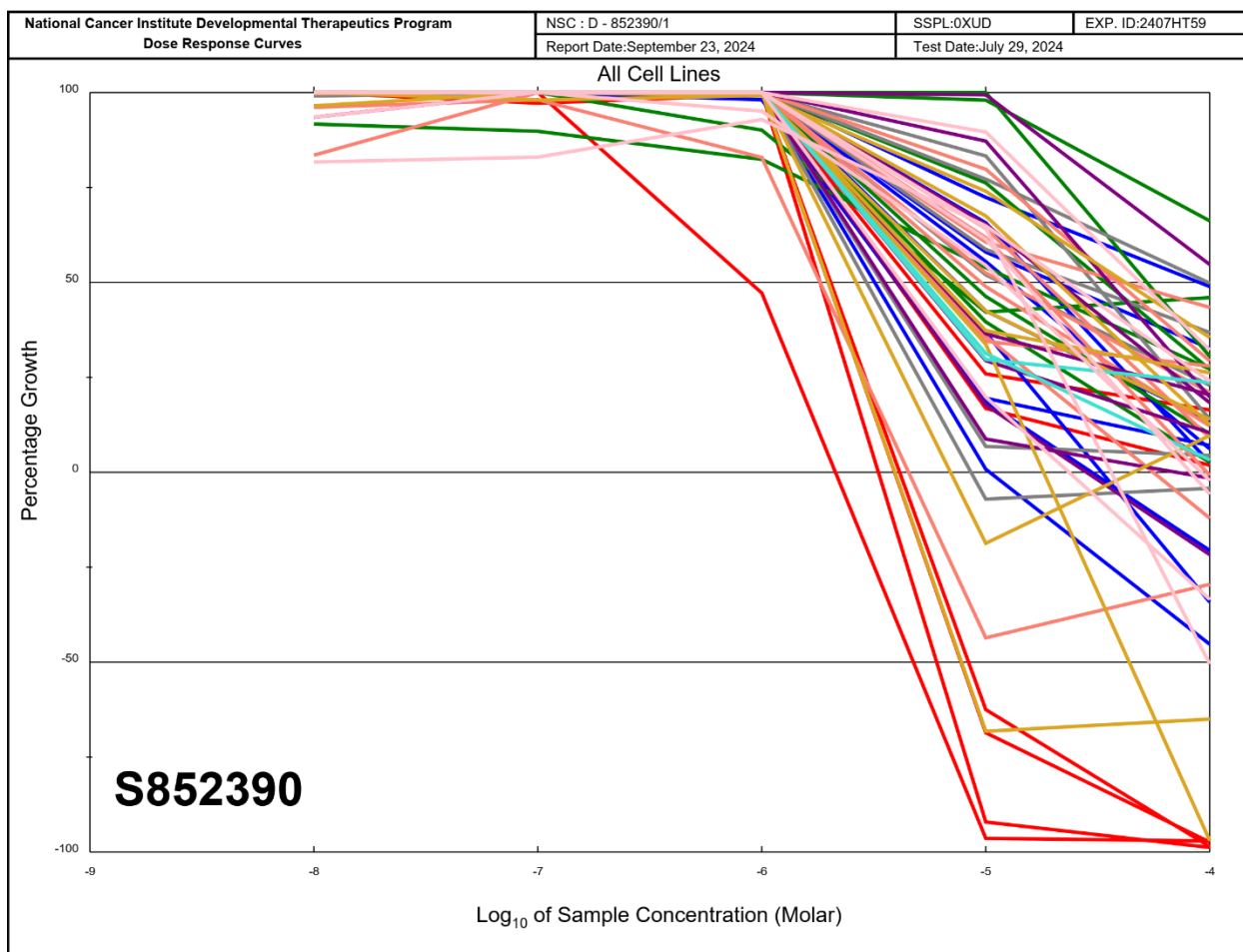
National Cancer Institute Developmental Therapeutics Program In-Vitro Testing Results

NSC : D - 852390 / 1			Experiment ID : 2407HT59					Test Type : HTS					Units : Molar		
Report Date : September 23, 2024			Test Date : July 29, 2024					QNS :					MC :		
COMI : MA-H			Stain Reagent :					SSPL : 0XUD							
Panel/Cell Line	Time		Log10 Concentration						Percent Growth						
	Zero	Ctrl	-8.0	-7.0	-6.0	-5.0	-4.0	-8.0	-7.0	-6.0	-5.0	-4.0	GI50	TGI	LC50
Leukemia															
CCRF-CEM	0.676	4.761	5.017	4.828	5.035	1.361	0.752	106	101	107	17	2	* 4.27E-6	> 1.00E-4	> 1.00E-4
HL-60(TB)	0.587	3.503	3.635	3.950	4.043	0.220	0.008	104	115	118	-62	-99	* 2.39E-6	* 4.51E-6	* 8.53E-6
K-562	0.506	7.319	7.399	7.137	7.275	2.263	1.625	101	97	99	26	16	* 4.70E-6	> 1.00E-4	> 1.00E-4
MOLT-4	0.700	3.692	4.136	4.310	4.127	0.220	0.018	115	121	115	-69	-97	* 2.25E-6	* 4.22E-6	* 7.92E-6
RPMI-8226	4.400	9.354	10.540	10.298	10.391	0.350	0.054	125	120	121	-92	-99	* 2.15E-6	* 3.70E-6	* 6.35E-6
SR	0.057	0.586	0.676	0.602	0.307	0.002	0.002	117	103	47	-96	-97	* 8.89E-7	* 2.13E-6	* 4.75E-6
Non-Small Cell Lung Cancer															
A549/ATCC	0.612	4.598	4.806	4.770	4.803	2.306	1.154	105	104	105	42	14	* 7.59E-6	> 1.00E-4	> 1.00E-4
EKVX	2.594	7.668	8.798	8.736	8.352	5.532	4.251	122	121	114	58	33	* 2.07E-5	> 1.00E-4	> 1.00E-4
HOP-62	1.049	3.493	3.956	3.614	3.864	2.407	1.199	119	105	115	56	6	* 1.30E-5	> 1.00E-4	> 1.00E-4
HOP-92	8.768	10.439	11.441	11.292	10.940	8.721	4.797	160	152	130	1	-45	* 4.16E-6	* 1.04E-5	> 1.00E-4
NCI-H226	6.508	13.787	15.651	15.198	14.887	9.170	4.280	126	119	115	37	-34	* 6.76E-6	* 3.29E-5	> 1.00E-4
NCI-H23	4.317	11.617	12.062	11.976	11.669	9.114	4.502	106	105	101	66	3	* 1.77E-5	> 1.00E-4	> 1.00E-4
NCI-H322M	4.446	12.114	13.450	14.005	13.926	9.998	8.198	117	125	124	72	49	* 8.99E-5	> 1.00E-4	> 1.00E-4
NCI-H460	1.246	19.071	20.185	19.800	20.617	4.716	2.502	106	104	109	20	7	* 4.55E-6	> 1.00E-4	> 1.00E-4
NCI-H522	3.641	9.084	9.167	9.355	8.986	4.636	2.890	101	105	98	18	-21	* 4.02E-6	* 2.97E-5	> 1.00E-4
Colon Cancer															
COLO 205	1.187	4.822	5.637	5.701	5.784	5.698	2.298	122	124	126	124	30	* 6.20E-5	> 1.00E-4	> 1.00E-4
HCC-2998	1.982	5.532	6.625	6.483	5.181	3.479	3.617	131	127	90	42	46	* 6.86E-6	> 1.00E-4	> 1.00E-4
HCT-116	0.434	4.693	5.020	5.078	5.156	2.407	0.865	108	109	111	46	10	* 8.77E-6	> 1.00E-4	> 1.00E-4
HCT-15	1.389	12.446	11.533	11.317	10.503	7.354	4.400	92	90	82	54	27	* 1.40E-5	> 1.00E-4	> 1.00E-4
HT29	0.630	5.181	5.557	5.493	5.705	4.098	1.862	108	107	112	76	27	* 3.42E-5	> 1.00E-4	> 1.00E-4
KM12	0.537	3.078	3.630	3.640	3.580	1.545	0.603	122	122	120	40	3	* 7.41E-6	> 1.00E-4	> 1.00E-4
SW-620	0.598	4.140	4.836	4.808	4.812	4.071	2.943	120	119	119	98	66	> 1.00E-4	> 1.00E-4	> 1.00E-4
CNS Cancer															
SF-268	0.654	2.159	2.238	2.299	2.212	1.538	1.207	105	109	104	59	37	* 2.50E-5	> 1.00E-4	> 1.00E-4
SF-295	1.921	4.457	4.435	4.460	4.450	4.032	2.276	99	100	100	83	14	* 3.02E-5	> 1.00E-4	> 1.00E-4
SF-539	3.656	13.363	13.691	13.913	13.904	3.556	3.502	103	106	106	-7	-4	* 3.11E-6	* 8.65E-6	> 1.00E-4
SNB-19	1.925	4.855	5.194	5.236	5.182	4.188	3.382	112	113	111	77	50	* 9.79E-5	> 1.00E-4	> 1.00E-4
SNB-75	1.257	2.362	2.555	2.566	2.561	1.334	1.308	117	118	118	7	4	* 4.08E-6	> 1.00E-4	> 1.00E-4
U251	0.750	3.962	4.424	4.564	4.391	2.421	1.483	114	119	113	52	23	* 1.17E-5	> 1.00E-4	> 1.00E-4
Melanoma															
LOX IMVI	0.607	3.631	4.020	3.830	3.946	2.084	0.975	113	107	110	49	12	* 9.58E-6	> 1.00E-4	> 1.00E-4
MALME-3M	6.325	8.983	9.529	9.473	9.450	7.279	5.562	121	118	118	36	-12	* 6.71E-6	* 5.60E-5	> 1.00E-4
M14	4.271	12.275	13.299	13.910	13.832	8.471	5.954	113	120	119	52	21	* 1.20E-5	> 1.00E-4	> 1.00E-4
MDA-MB-435	1.473	4.841	5.515	5.448	5.638	3.514	2.935	120	118	124	61	43	* 4.15E-5	> 1.00E-4	> 1.00E-4
SK-MEL-2	2.519	5.641	5.519	5.582	5.107	1.420	1.776	96	98	83	-44	-30	* 1.82E-6	* 4.52E-6	> 1.00E-4
SK-MEL-28	1.431	3.390	3.687	3.658	3.732	2.993	2.005	115	114	117	80	29	* 3.89E-5	> 1.00E-4	> 1.00E-4
SK-MEL-5	3.825	11.835	10.519	12.375	12.843	8.770	3.924	84	107	112	62	-1	* 1.55E-5	* 9.71E-5	> 1.00E-4
UACC-257	3.486	7.413	8.137	8.373	8.582	4.839	4.588	118	124	130	34	28	* 6.88E-6	> 1.00E-4	> 1.00E-4
UACC-62	0.739	3.130	3.359	3.198	3.504	2.275	0.957	110	103	116	64	9	* 1.81E-5	> 1.00E-4	> 1.00E-4
Ovarian Cancer															
IGROV1	1.018	3.274	3.768	3.704	3.642	2.985	1.464	122	119	116	87	20	* 3.56E-5	> 1.00E-4	> 1.00E-4
OVCA-3	4.654	18.797	18.940	19.826	19.603	9.814	7.540	101	107	106	36	20	* 6.37E-6	> 1.00E-4	> 1.00E-4
OVCA-4	5.328	9.515	10.809	11.067	10.571	6.071	4.171	131	137	125	18	-22	* 5.01E-6	* 2.81E-5	> 1.00E-4
OVCA-5	6.474	14.864	15.228	15.699	15.444	14.810	11.054	104	110	107	99	55	> 1.00E-4	> 1.00E-4	> 1.00E-4
OVCA-8	0.673	3.741	4.212	4.058	3.816	0.941	0.687	115	110	102	9	-2	* 3.63E-6	* 7.09E-5	> 1.00E-4
NCI/ADR-RES	3.746	11.148	12.494	12.638	12.579	5.924	4.517	118	120	119	29	10	* 5.90E-6	> 1.00E-4	> 1.00E-4
SK-OV-3	2.611	9.944	9.467	10.790	10.710	7.391	3.954	94	112	111	65	18	* 2.12E-5	> 1.00E-4	> 1.00E-4
Renal Cancer															
786-0	1.778	6.542	6.526	6.590	6.504	3.806	2.438	100	101	99	42	14	* 7.39E-6	> 1.00E-4	> 1.00E-4
A498	1.927	7.664	7.997	8.363	7.879	1.566	2.485	106	112	104	-19	10	* 2.75E-6	.	> 1.00E-4
ACHN	1.537	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CAKI-1	1.045	4.222	4.486	4.479	4.398	2.115	0.031	108	108	106	34	-97	* 5.93E-6	* 1.81E-5	* 4.37E-5
RXF 393	1.802	3.132	3.086	3.232	3.203	0.574	0.632	96	107	105	-68	-65	* 2.09E-6	* 4.05E-6	* 7.86E-6
SN12C	0.623	2.414	2.531	2.633	2.559	1.292	1.093	106	112	108	37	26	* 6.62E-6	> 1.00E-4	> 1.00E-4
TK-10	6.290	17.260	17.690	18.138	17.852	13.699	7.650	104	108	105	68	12	* 2.08E-5	> 1.00E-4	> 1.00E-4
UO-31	1.550	5.913	5.918	5.826	5.880	4.779	3.099	100	98	99	74	36	* 4.20E-5	> 1.00E-4	> 1.00E-4
Prostate Cancer															
PC-3	3.978	11.159	13.142	12.583	13.390	6.230	4.209	128	120	131	31	3	* 6.50E-6	> 1.00E-4	> 1.00E-4
DU-145	0.636	3.766	4.200	4.060	4.023	1.565	1.374	114	109	108	30	24	* 5.51E-6	> 1.00E-4	> 1.00E-4
Breast Cancer															
MCF7	2.550	16.169	13.679	13.856	15.192	11.394	5.812	82	83	93	65	24	* 2.31E-5	> 1.00E-4	> 1.00E-4
MDA-MB-231/ATCC	5.261	12.044	13.172	12.393	12.573	11.335	7.443	117	105	108	90	32	* 4.89E-5	> 1.00E-4	> 1.00E-4
HS 578T	1.006	2.636	2.643	3.100	2.836	1.978	0.956	102	129	114	61	-6	* 1.48E-5	* 8.20E-5	> 1.00E-4
BT-549	3.822	8.395	9.521	9.838	9.485	6.761	1.893	125	132	124	64	-50	* 1.33E-5	* 3.63E-5	* 9.91E-5
T-47D	5.838	11.611	11.242	11.667	11.328	8.986	5.709	94	101	95	54	-2	* 1.20E-5	* 9.14E-5	> 1.00E-4
MDA-MB-468	6.310	10.765	10.853	11.073	11.005	7.199	4.198	102	107	105	20	-34	* 4.44E-6	* 2.35E-5	> 1.00E-4

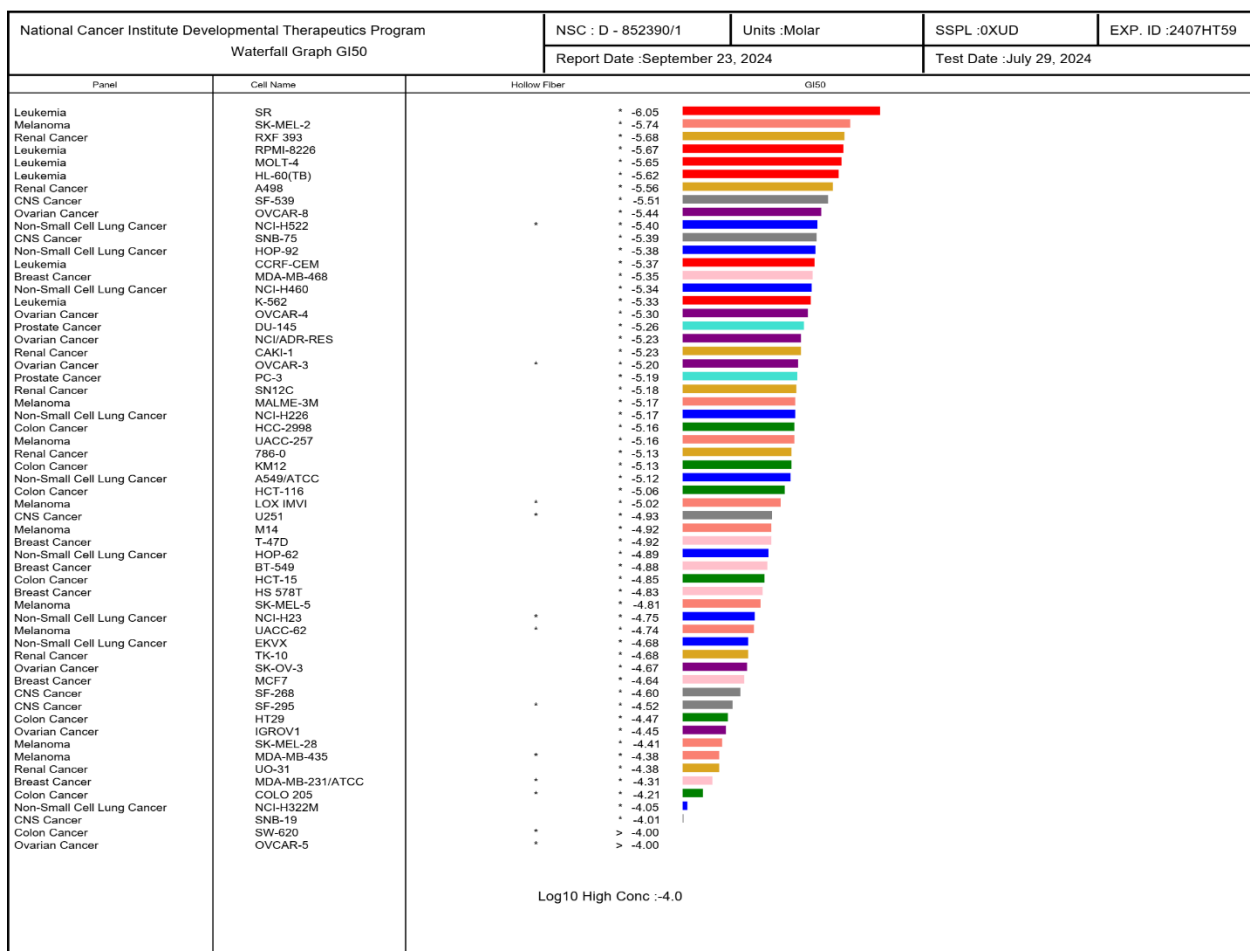
NCI five dose results of compound 11c



NCI five dose results of compound 11c



NCI five dose results of compound **11c**



NCI five dose results of compound **11c**

National Cancer Institute Developmental Therapeutics Program		NSC : D - 852390/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT59		
Waterfall Graph TGI		Report Date :September 23, 2024				Test Date :July 29, 2024				
Panel	Cell Name	Hollow Fiber	TGI							
Leukemia	SR	*	-5.67							
Leukemia	RPMI-8226	*	-5.43							
Renal Cancer	RXF 393	*	-5.39							
Leukemia	MOLT-4	*	-5.37							
Leukemia	HL-60(TB)	*	-5.35							
Melanoma	SK-MEL-2	*	-5.34							
CNS Cancer	SF-539	*	-5.06							
Non-Small Cell Lung Cancer	HOP-92	*	-4.98							
Renal Cancer	CAKI-1	*	-4.74							
Breast Cancer	MDA-MB-468	*	-4.63							
Ovarian Cancer	OVCAR-4	*	-4.55							
Non-Small Cell Lung Cancer	NCI-H522	*	-4.53							
Non-Small Cell Lung Cancer	NCI-H226	*	-4.48							
Breast Cancer	BT-549	*	-4.44							
Melanoma	MALME-3M	*	-4.25							
Ovarian Cancer	OVCAR-8	*	-4.15							
Breast Cancer	HS 578T	*	-4.09							
Breast Cancer	T-47D	*	-4.04							
Melanoma	SK-MEL-5	*	-4.01							
Leukemia	CCRF-CEM	>	-4.00							
Leukemia	K-562	>	-4.00							
Non-Small Cell Lung Cancer	AS49/ATCC	>	-4.00							
Non-Small Cell Lung Cancer	EKVX	>	-4.00							
Non-Small Cell Lung Cancer	HOP-62	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H23	*	-4.00							
Non-Small Cell Lung Cancer	NCI-H322M	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H460	>	-4.00							
Colon Cancer	COLO 205	*	-4.00							
Colon Cancer	HCC-2998	>	-4.00							
Colon Cancer	HCT-116	>	-4.00							
Colon Cancer	HCT-15	>	-4.00							
Colon Cancer	HT29	>	-4.00							
Colon Cancer	KM12	>	-4.00							
Colon Cancer	SW-620	*	-4.00							
CNS Cancer	SF-268	>	-4.00							
CNS Cancer	SF-295	*	-4.00							
CNS Cancer	SNB-19	>	-4.00							
CNS Cancer	SNB-75	>	-4.00							
CNS Cancer	U251	*	-4.00							
Melanoma	LOX IMVI	*	-4.00							
Melanoma	M14	>	-4.00							
Melanoma	MDA-MB-435	*	-4.00							
Melanoma	SK-MEL-28	>	-4.00							
Melanoma	UACC-257	>	-4.00							
Melanoma	UACC-62	*	-4.00							
Ovarian Cancer	IGROV1	>	-4.00							
Ovarian Cancer	OVCAR-3	*	-4.00							
Ovarian Cancer	OVCAR-5	*	-4.00							
Ovarian Cancer	NCI/ADR-RES	>	-4.00							
Ovarian Cancer	SK-OV-3	>	-4.00							
Renal Cancer	786-O	>	-4.00							
Renal Cancer	SN12C	>	-4.00							
Renal Cancer	TK-10	>	-4.00							
Renal Cancer	UO-31	>	-4.00							
Prostate Cancer	PC-3	>	-4.00							
Prostate Cancer	DU-145	>	-4.00							
Breast Cancer	MCF7	>	-4.00							
Breast Cancer	MDA-MB-231/ATCC	*	-4.00							
Log10 High Conc : -4.0										

NCI five dose results of compound **11c**

National Cancer Institute Developmental Therapeutics Program		NSC : D - 852390/1		Units :Molar		SSPL :0XUD		EXP. ID :2407HT59		
Waterfall Graph LC50		Report Date :September 23, 2024				Test Date :July 29, 2024				
Panel	Cell Name	Hollow Fiber	LC50							
Leukemia	SR	*	-5.32							
Leukemia	RPMI-8226	*	-5.20							
Renal Cancer	RXF 393	*	-5.10							
Leukemia	MOLT-4	*	-5.10							
Leukemia	HL-60(TB)	*	-5.07							
Renal Cancer	CAKI-1	*	-4.36							
Breast Cancer	BT-549	*	-4.00							
Leukemia	CCRF-CEM	>	-4.00							
Leukemia	K-562	>	-4.00							
Non-Small Cell Lung Cancer	A549/ATCC	>	-4.00							
Non-Small Cell Lung Cancer	EKVX	>	-4.00							
Non-Small Cell Lung Cancer	HOP-62	>	-4.00							
Non-Small Cell Lung Cancer	HOP-92	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H226	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H23	*	-4.00							
Non-Small Cell Lung Cancer	NCI-H322M	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H460	>	-4.00							
Non-Small Cell Lung Cancer	NCI-H522	*	-4.00							
Colon Cancer	COLO 205	*	-4.00							
Colon Cancer	HCC-2998	>	-4.00							
Colon Cancer	HCT-116	>	-4.00							
Colon Cancer	HCT-15	>	-4.00							
Colon Cancer	HT29	>	-4.00							
Colon Cancer	KM12	>	-4.00							
Colon Cancer	SW-620	*	-4.00							
CNS Cancer	SF-268	>	-4.00							
CNS Cancer	SF-295	*	-4.00							
CNS Cancer	SF-539	>	-4.00							
CNS Cancer	SNB-19	>	-4.00							
CNS Cancer	SNB-75	>	-4.00							
CNS Cancer	U251	*	-4.00							
Melanoma	LOX IMVI	*	-4.00							
Melanoma	MALME-3M	>	-4.00							
Melanoma	M14	>	-4.00							
Melanoma	MDA-MB-435	*	-4.00							
Melanoma	SK-MEL-2	>	-4.00							
Melanoma	SK-MEL-28	>	-4.00							
Melanoma	SK-MEL-5	>	-4.00							
Melanoma	UACC-257	>	-4.00							
Melanoma	UACC-62	*	-4.00							
Ovarian Cancer	IGROV1	>	-4.00							
Ovarian Cancer	OVCAR-3	*	-4.00							
Ovarian Cancer	OVCAR-4	>	-4.00							
Ovarian Cancer	OVCAR-5	*	-4.00							
Ovarian Cancer	OVCAR-8	>	-4.00							
Ovarian Cancer	NCI/ADR-RES	>	-4.00							
Ovarian Cancer	SK-OV-3	>	-4.00							
Renal Cancer	786-0	>	-4.00							
Renal Cancer	A498	>	-4.00							
Renal Cancer	SN12C	>	-4.00							
Renal Cancer	TK-10	>	-4.00							
Renal Cancer	UO-31	>	-4.00							
Prostate Cancer	PC-3	>	-4.00							
Prostate Cancer	DU-145	>	-4.00							
Breast Cancer	MCF7	*	-4.00							
Breast Cancer	MDA-MB-231/ATCC	>	-4.00							
Breast Cancer	HS 578T	>	-4.00							
Breast Cancer	T-47D	>	-4.00							
Breast Cancer	MDA-MB-468	>	-4.00							
Log10 High Conc : -4.0										

NCI five dose results of compound **11c**

in-vitro cytotoxic effects against normal cells WI-38

Detailed results:

researcher
Dr.Omar alshazly

assay
MTT

Date
25-Sep

cells
WI38

	Blank	CC	Sample No. 11b/WI38					Sample No. Gef/WI38				
	1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	100ug	25ug	6.25ug	1.6ug	0.4ug	100ug	25ug	6.25ug	1.6ug	0.4ug
B	B	C	100ug	25ug	6.25ug	1.6ug	0.4ug	100ug	25ug	6.25ug	1.6ug	0.4ug
C	B	C	100ug	25ug	6.25ug	1.6ug	0.4ug	100ug	25ug	6.25ug	1.6ug	0.4ug

ROBONIK P2000 eia reader

Wave length: 450 nm

Reference: 630 nm

	1	2	3	4	5	6	7	8	9	10	11	12
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A	0.001	0.479	0.226	0.286	0.325	0.367	0.439	0.161	0.238	0.292	0.372	0.418
B	0.001	0.513	0.241	0.292	0.346	0.392	0.451	0.174	0.244	0.307	0.363	0.425
C	0.001	0.492	0.239	0.303	0.357	0.411	0.461	0.165	0.229	0.318	0.359	0.419
mean	0.00038	0.4947	0.2353	0.29367	0.3427	0.39	0.4503	0.1667	0.237	0.3057	0.3647	0.421
%		^	47.574	59.3666	69.272	78.841	91.038	33.693	47.911	61.792	73.72	85.04

11b/WI38

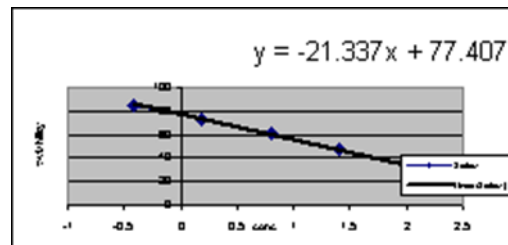
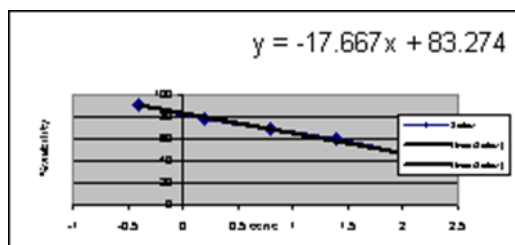
log conc.	% viability
2	47.5741
1.3979	59.3666
0.7959	69.2722
0.1931	78.841
-0.409	91.0377

Gef/WI38

log conc.	% viability
2	33.693
1.3979	47.911
0.7959	61.792
0.1931	73.72
-0.409	85.04

IC50=

IC50=



Enzymatic Assay

Detailed results

VEGFR-2

code	Conc μ M	log	%inhibition	T2	T1	Δ T
10b	10	1	84.53	30	0	30
	1	0	65.77	30	0	30
	0.1	-1	49.68	30	0	30
	0.01	-2	28.79	30	0	30
	0.001	-3	7.10	30	0	30

EC

code	conc	log	%inhibition	T2	T1	Δ T
11a	10	1	81.98	30	0	30
	1	0	65.61	30	0	30
	0.1	-1	45.83	30	0	30
	0.01	-2	32.56	30	0	30
	0.001	-3	9.71	30	0	30

EC

code	conc	log	%inhibition	T2	T1	Δ T
11b	10	1	89.08	30	0	30
	1	0	67.82	30	0	30
	0.1	-1	45.51	30	0	30
	0.01	-2	30.86	30	0	30
	0.001	-3	14.66	30	0	30

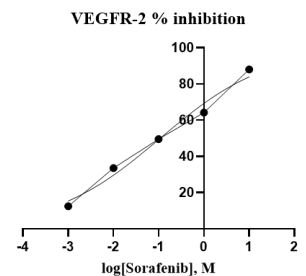
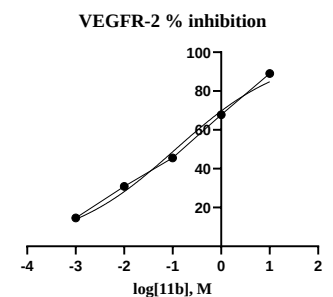
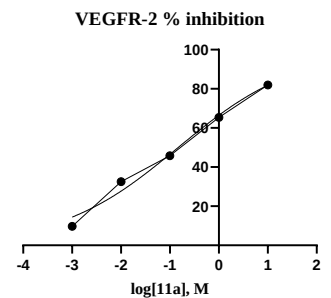
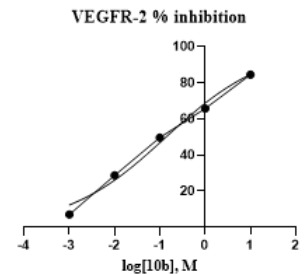
EC

code	conc	log	%inhibition	T2	T1	Δ T
Sorafenib	10	1	88.08	30	0	30
	1	0	64.24	30	0	30
	0.1	-1	49.51	30	0	30
	0.01	-2	33.53	30	0	30
	0.001	-3	12.47	30	0	30

EC

EGFR

code	Conc μ M	log	%inhibition	T2	T1	Δ T
10b	10	1	85.32	30	0	30
	1	0	70.34	30	0	30
	0.1	-1	58.77	30	0	30
	0.01	-2	35.91	30	0	30



EC 0.001 -3 20.25 30 0 30

code	conc	log	%inhibition	T2	T1	ΔT
11a	10	1	88.09	30	0	30
	1	0	75.28	30	0	30
	0.1	-1	64.19	30	0	30
	0.01	-2	36.48	30	0	30
	0.001	-3	23.14	30	0	30

EC

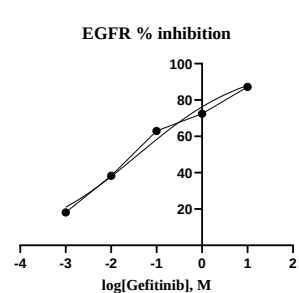
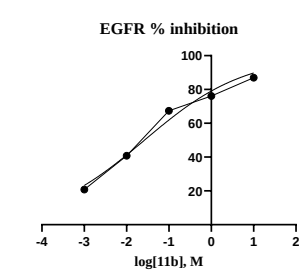
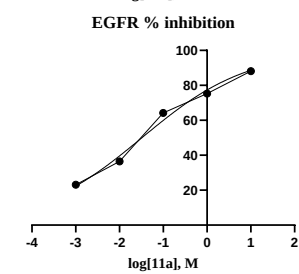
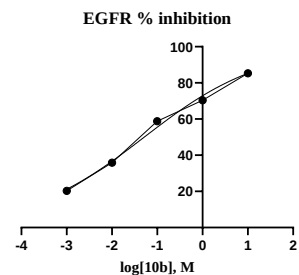
code	conc	log	%inhibition	T2	T1	ΔT
11b	10	1	86.97	30	0	30
	1	0	76.14	30	0	30
	0.1	-1	67.39	30	0	30
	0.01	-2	40.79	30	0	30
	0.001	-3	20.75	30	0	30

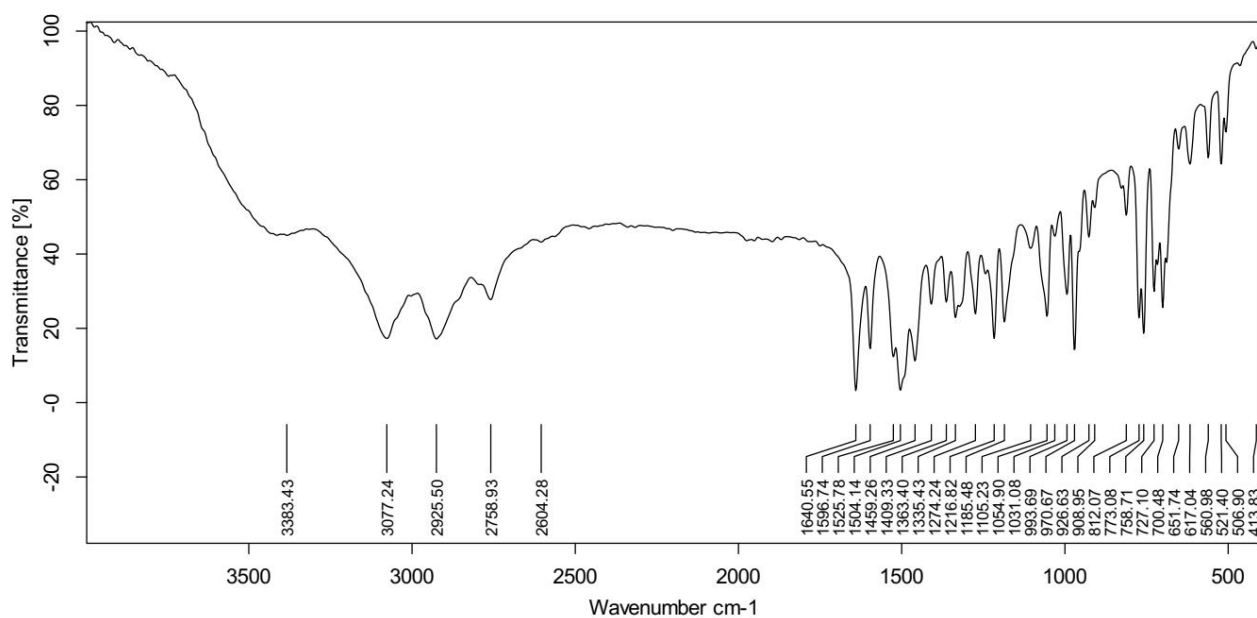
EC

code	conc	log	%inhibition	T2	T1	ΔT
Gefitinib	10	2	87.17	30	0	30
	1	1	72.46	30	0	30
	0.1	0	62.99	30	0	30
	0.01	-1	38.15	30	0	30
	0.001	-2	18.16	30	0	30

EC

IR Results



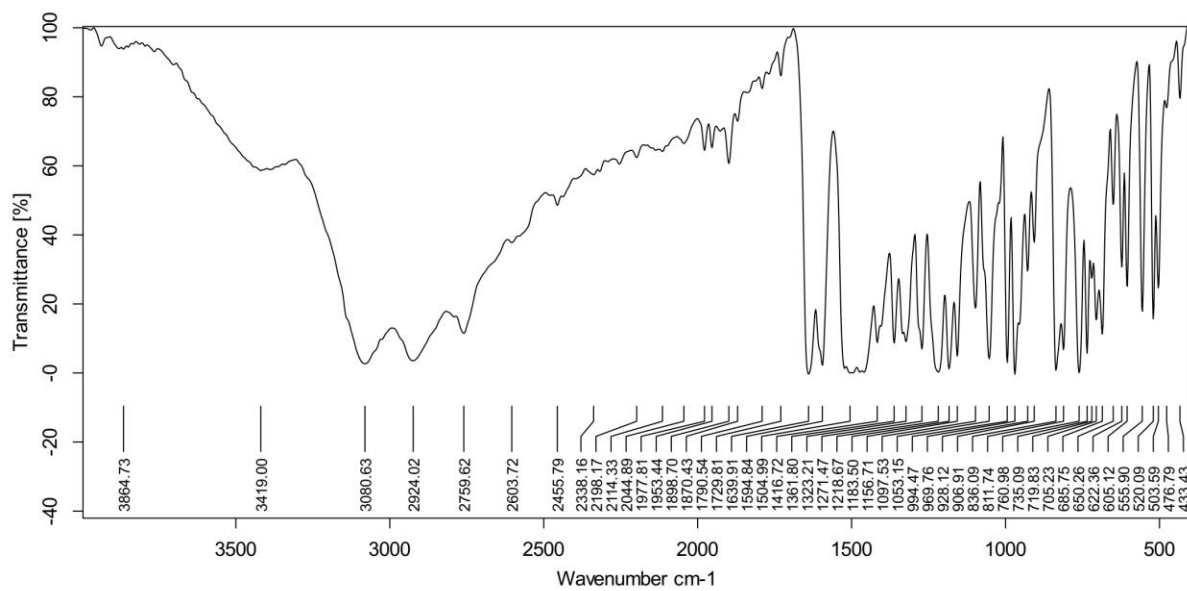


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14/05/2024

IR results of compound 9a

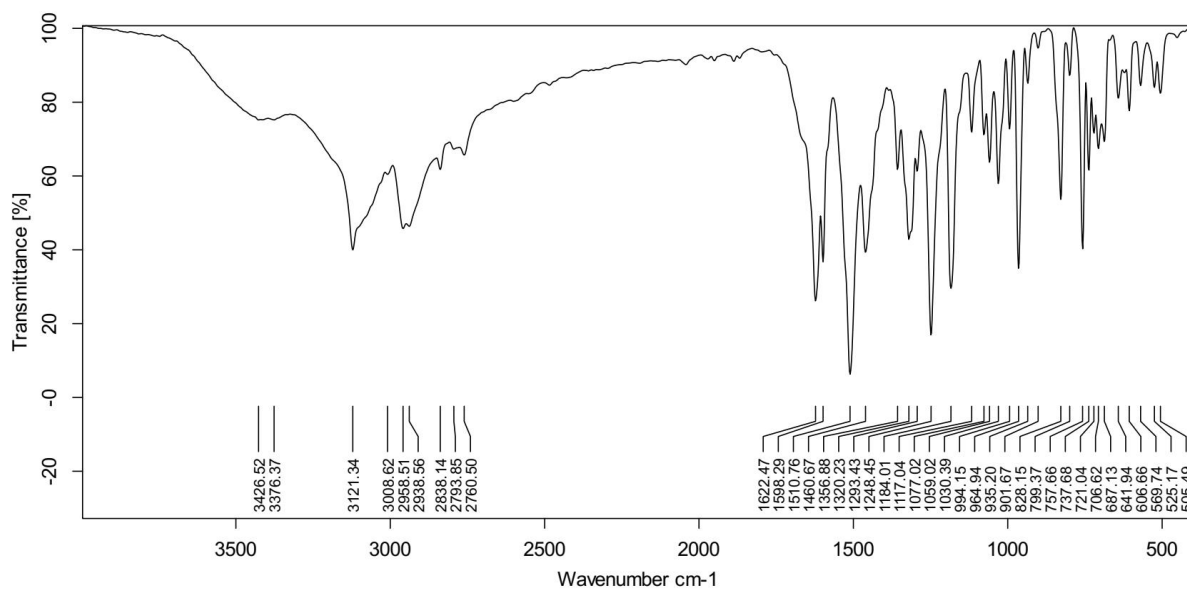


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14/05/2024

IR results of compound 9b

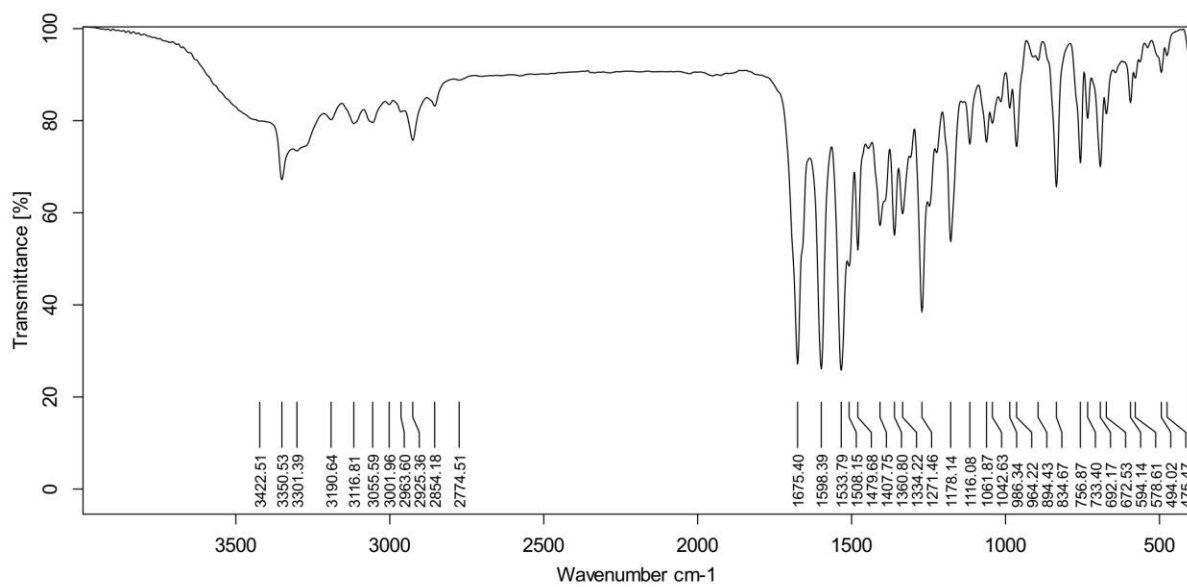


3_TRANS.30

10:37:03 Ö

14/05/2024

IR results of compound 9c

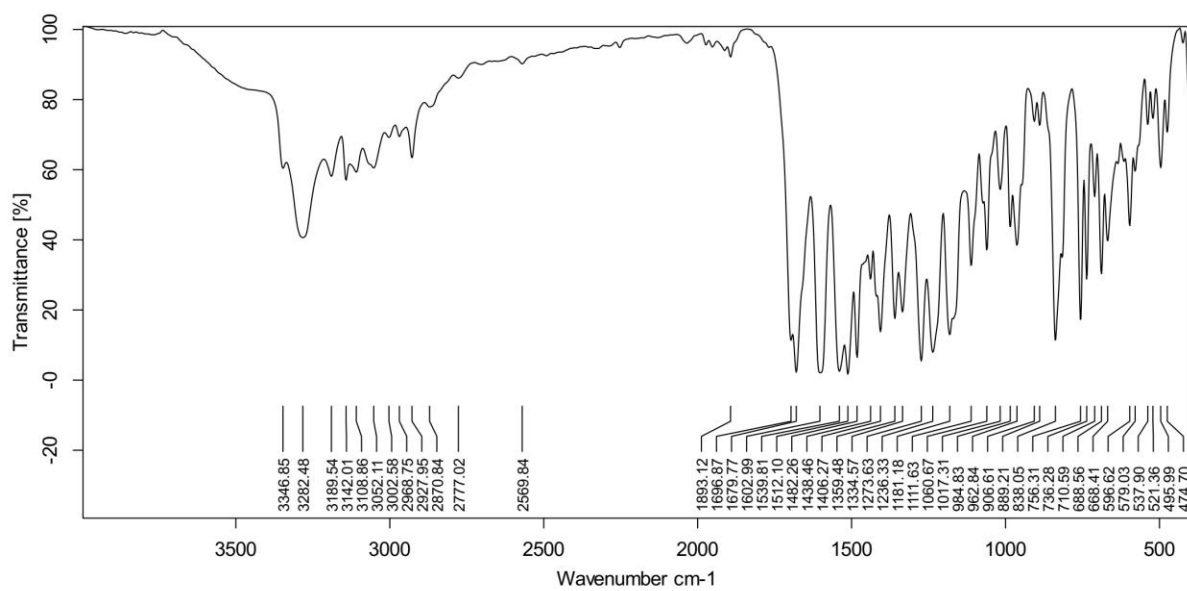


31_TRANS.1

01:44:16 ä

14/05/2024

IR results of compound 10a

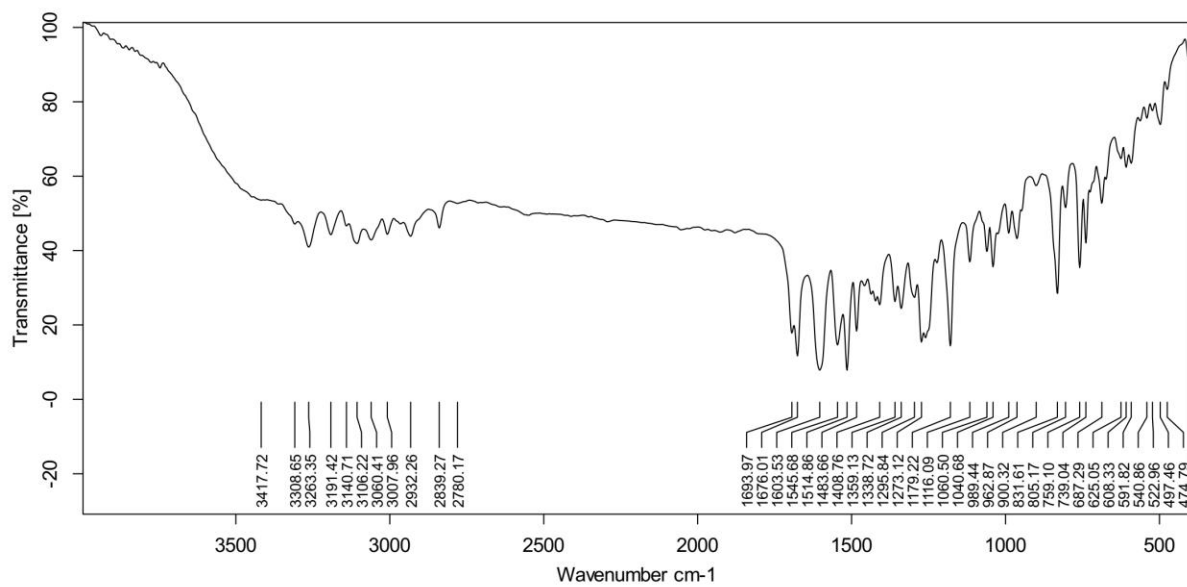


32_TRANS.1

01:47:20 ä

14/05/2024

IR results of compound 10b

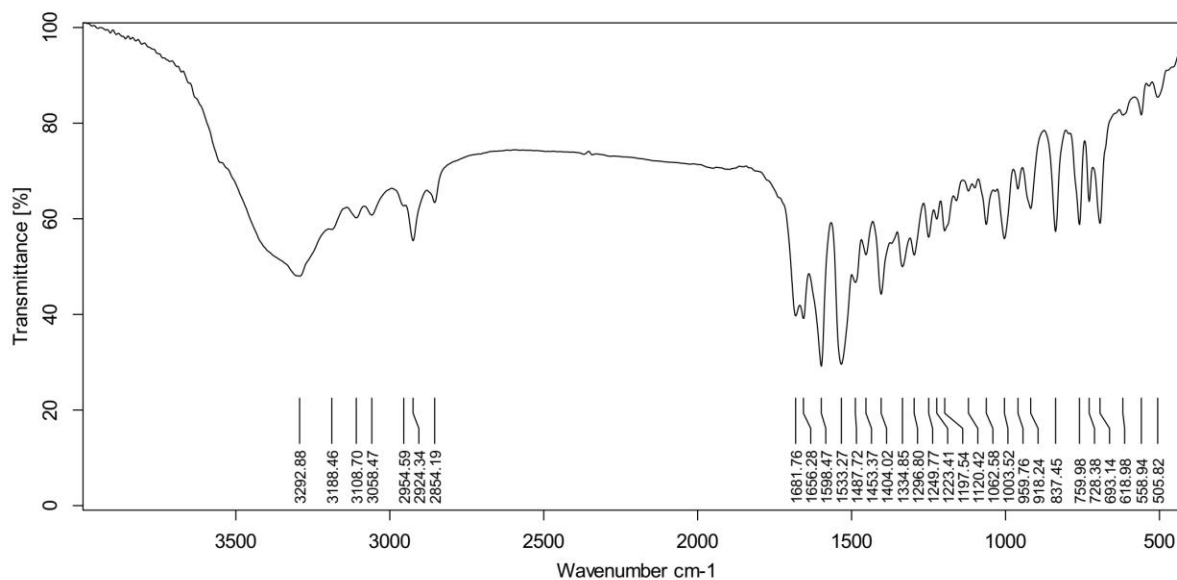


33_TRANS.1

01:53:22 ä

14/05/2024

IR results of compound 10c

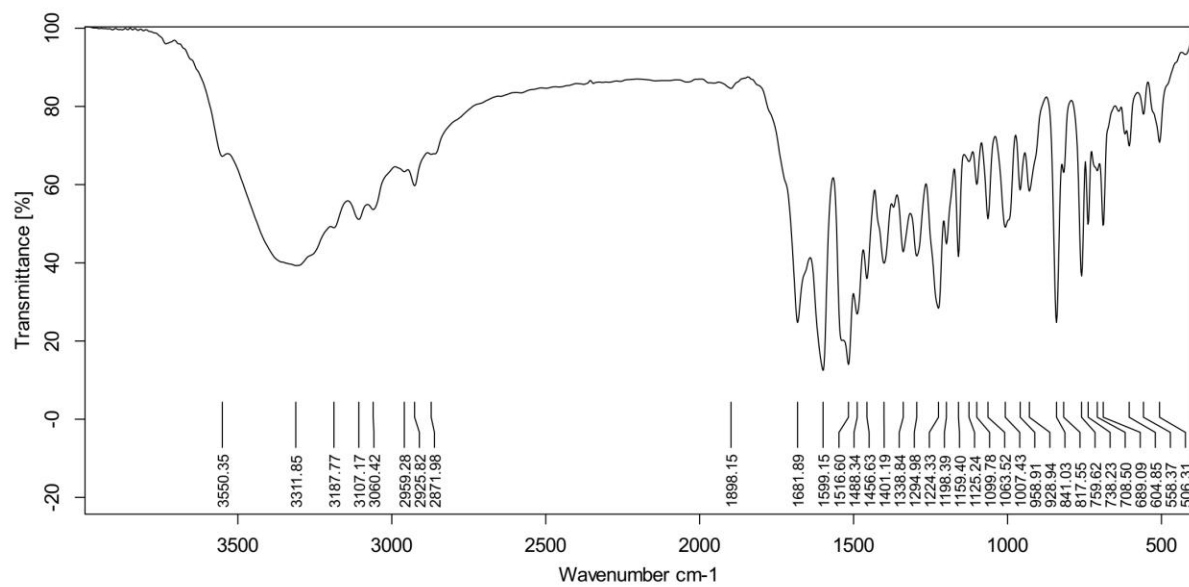


34_TRANS.1

02:01:31 ä

14/05/2024

IR results of compound 11a

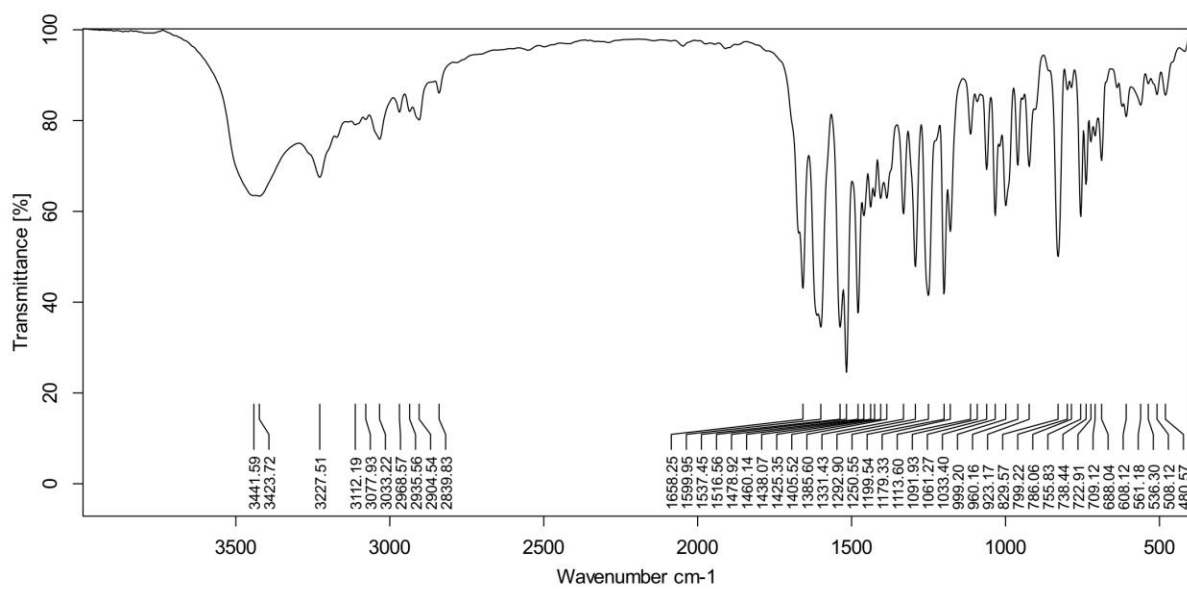


35_TRANS.1

02:05:12 ä

14/05/2024

IR results of compound 11b

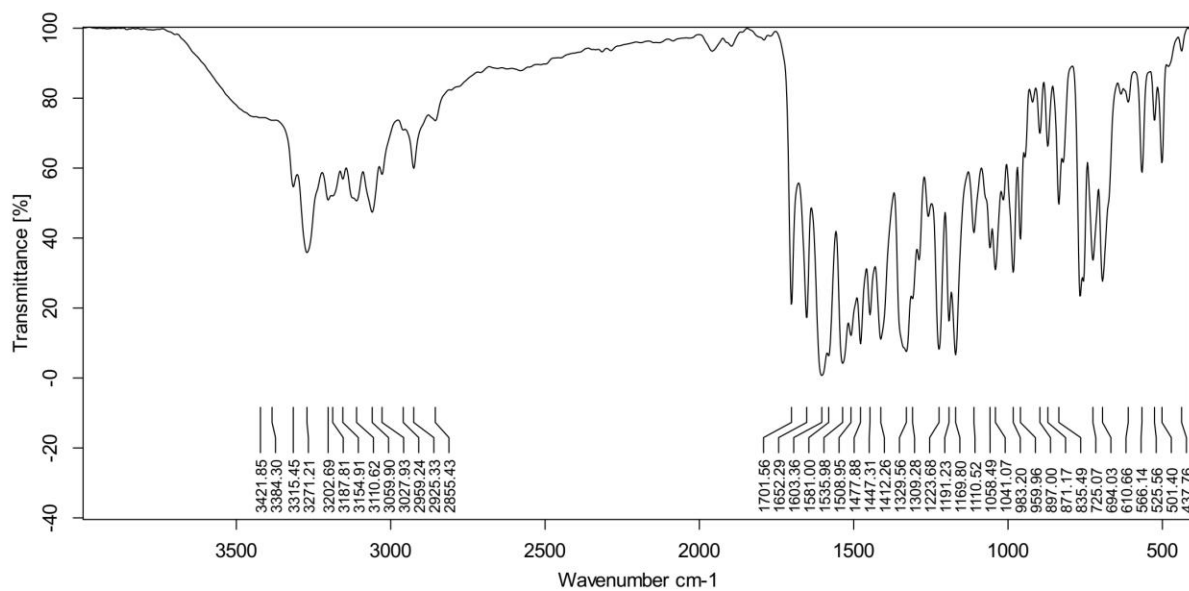


36_TRANS.1

02:08:48 ä

14/05/2024

IR results of compound 11c

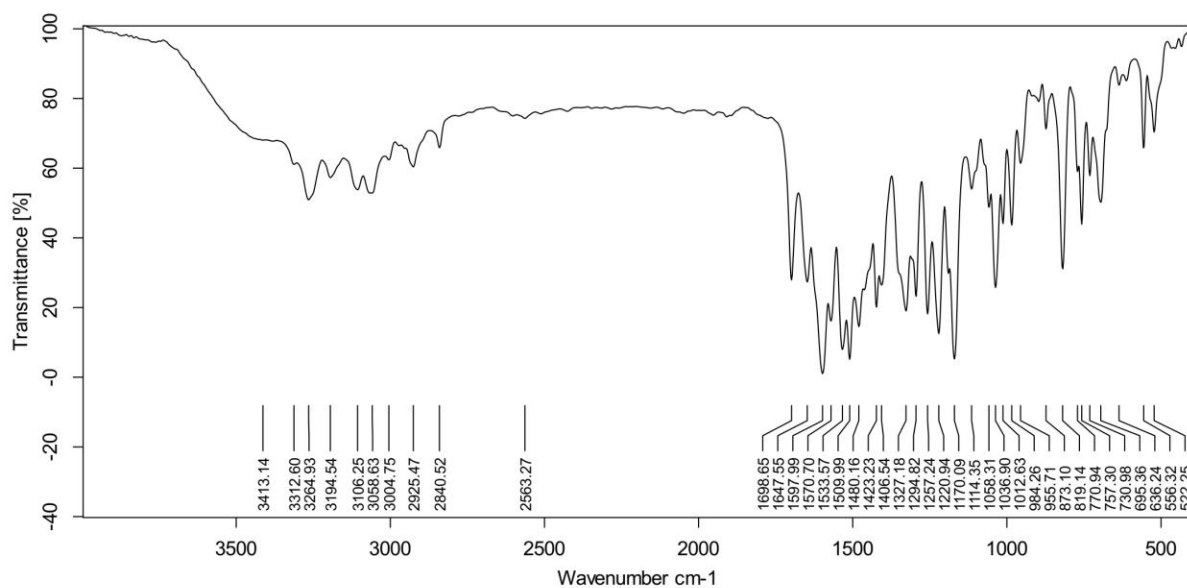


4_TRANS.26

10:42:26 Ö

14/05/2024

IR results of compound 12a

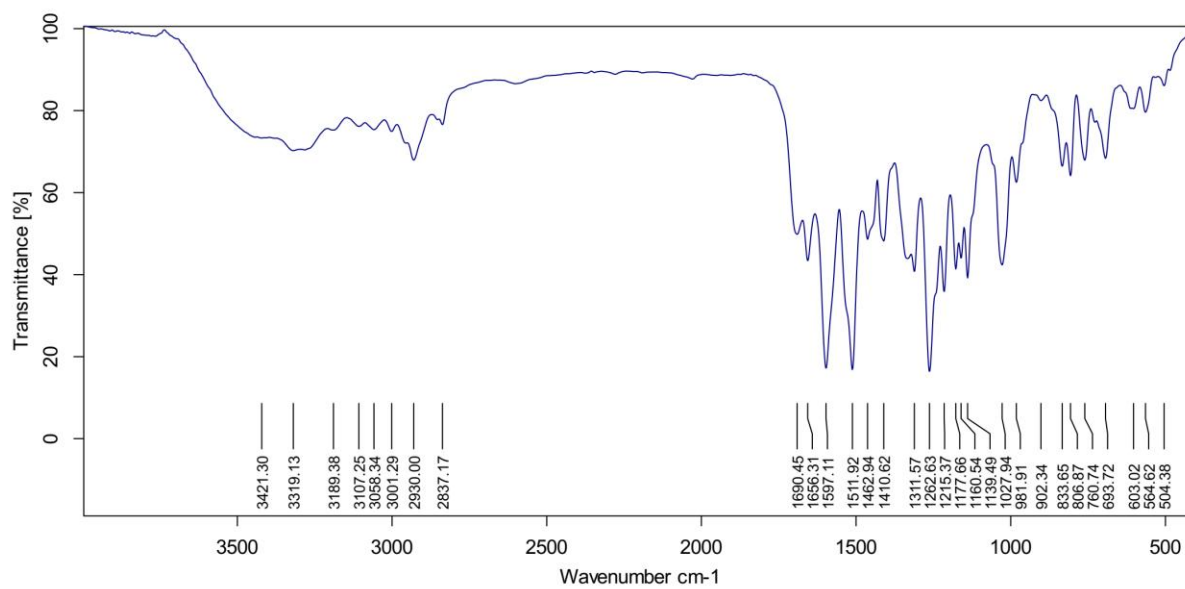


5_TRANS.15

10:48:57 Ö

14/05/2024

IR results of compound 12b

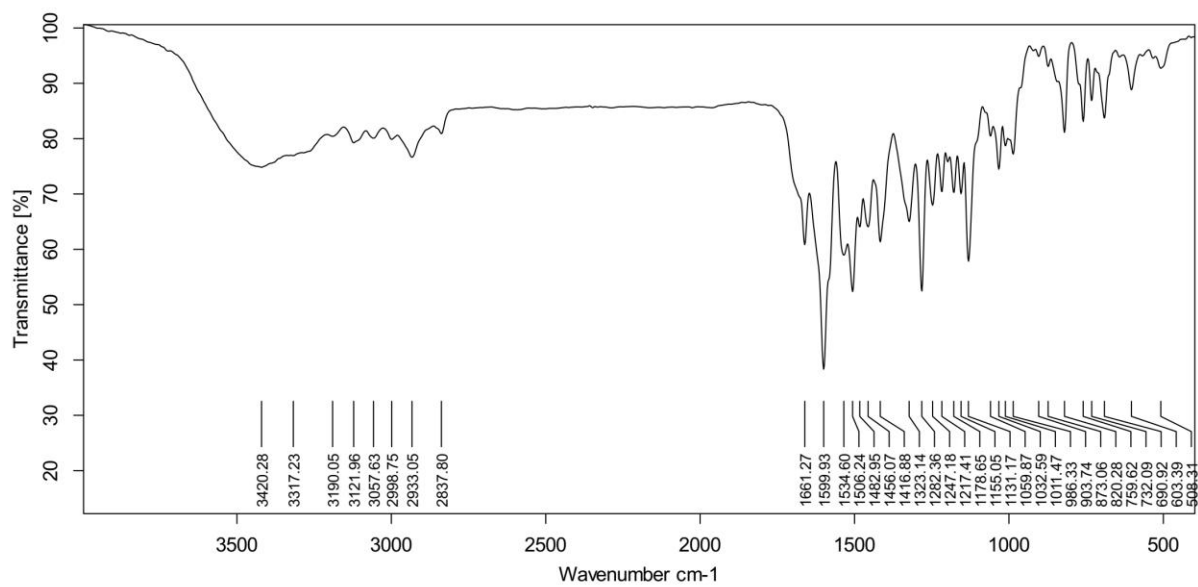


6_TRANS.14

10:54:32 Ö

14/05/2024

IR results of compound 12c

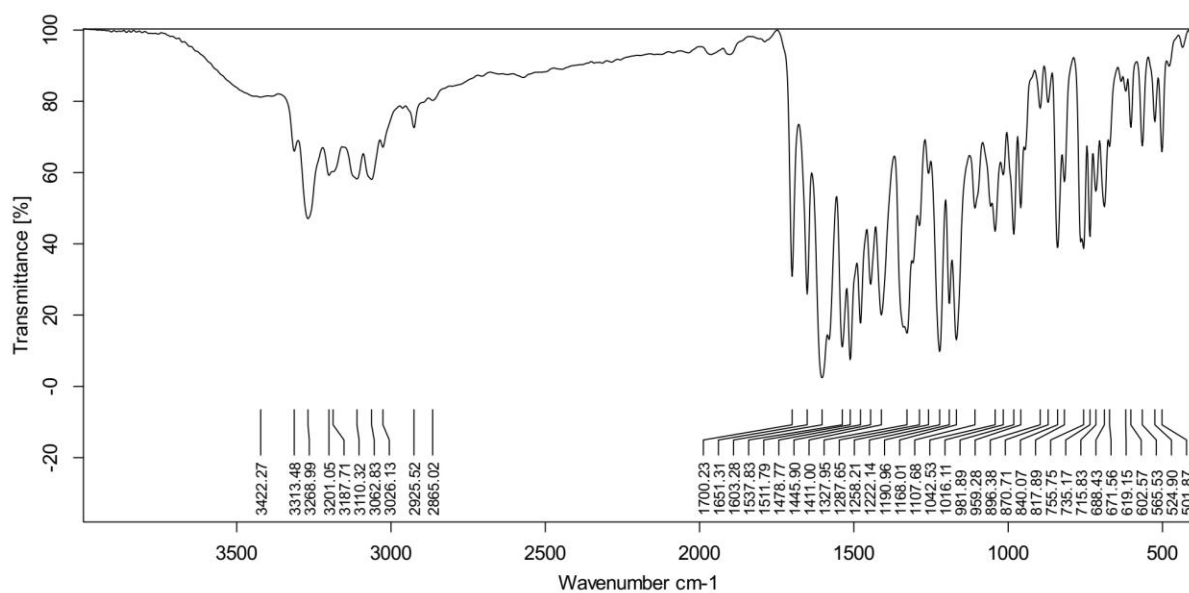


7_TRANS.12

10:56:13 Ö

14/05/2024

IR results of compound 12d

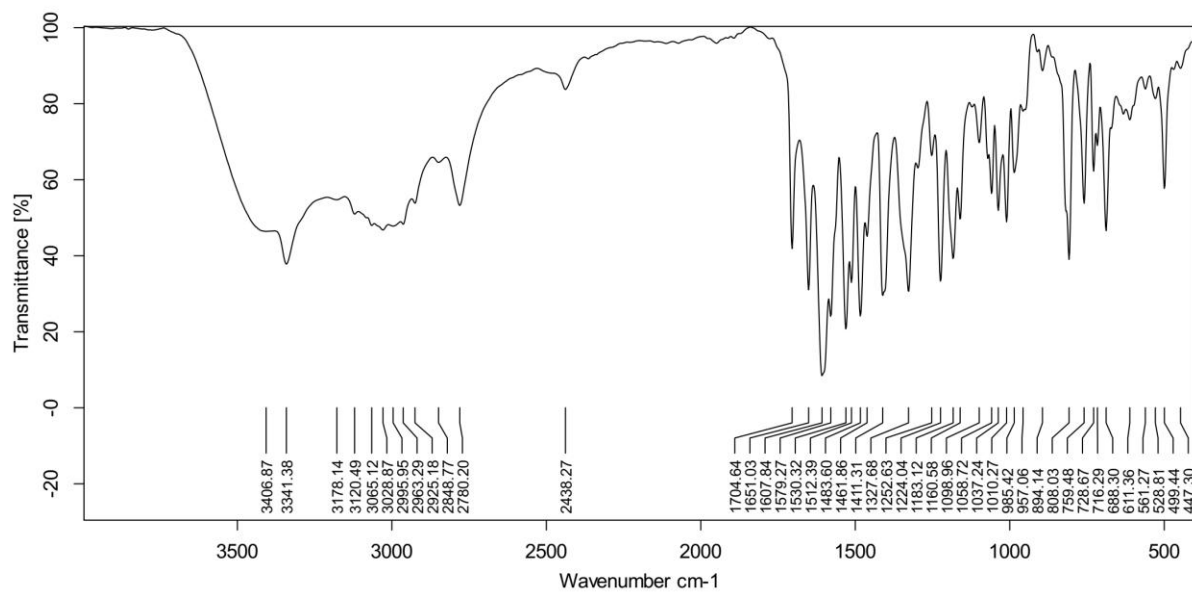


8_TRANS.6

11:02:24 Ö

14/05/2024

IR results of compound 12e

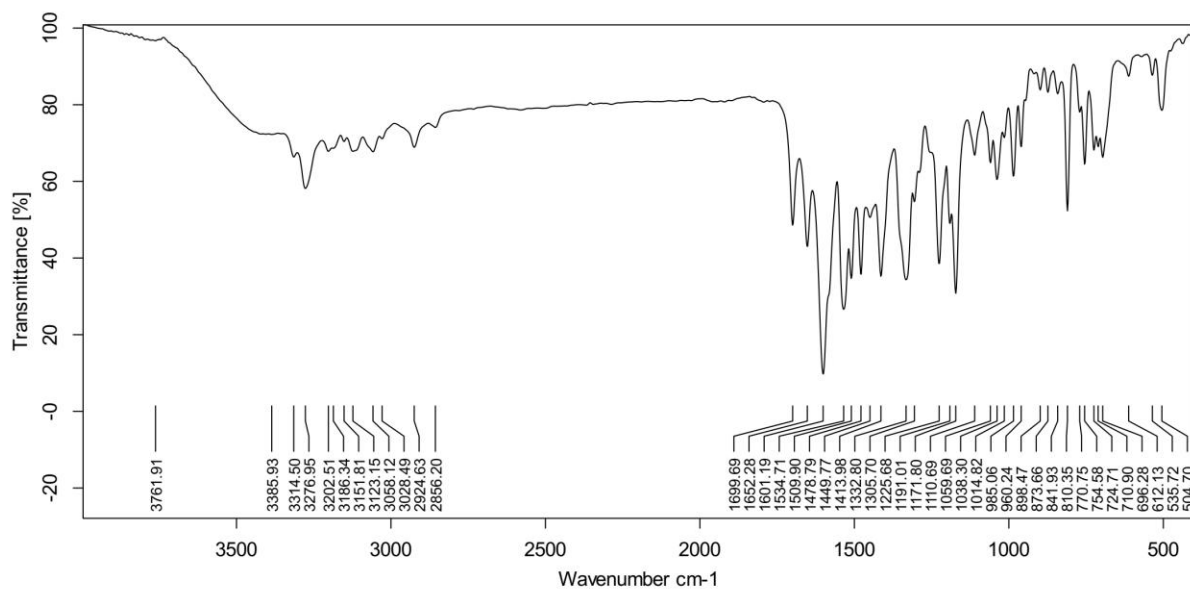


9_TRANS.6

11:11:37 Ö

14/05/2024

IR results of compound 12f

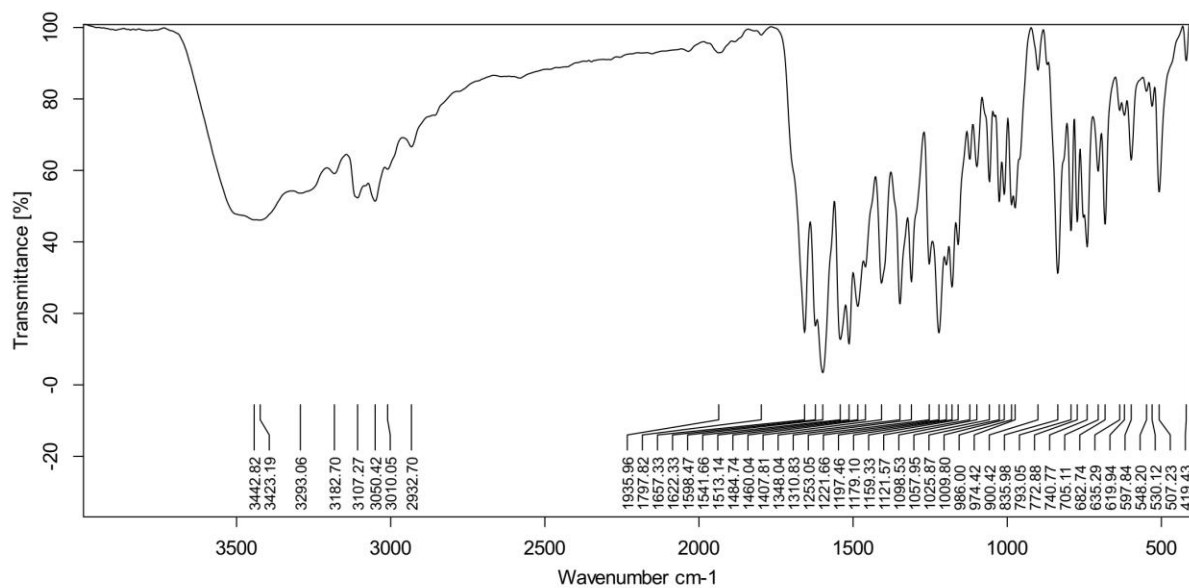


10_TRANS.7

11:20:55 Ö

14/05/2024

IR results of compound 12g

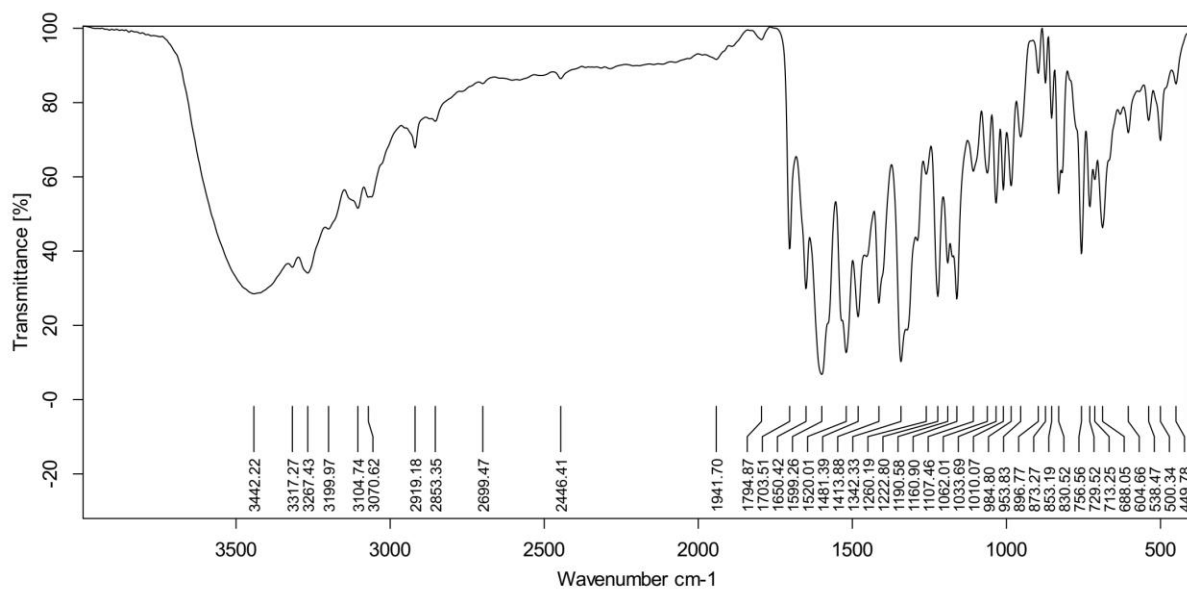


11_TRANS.8

11:29:52 Ö

14/05/2024

IR results of compound 12h

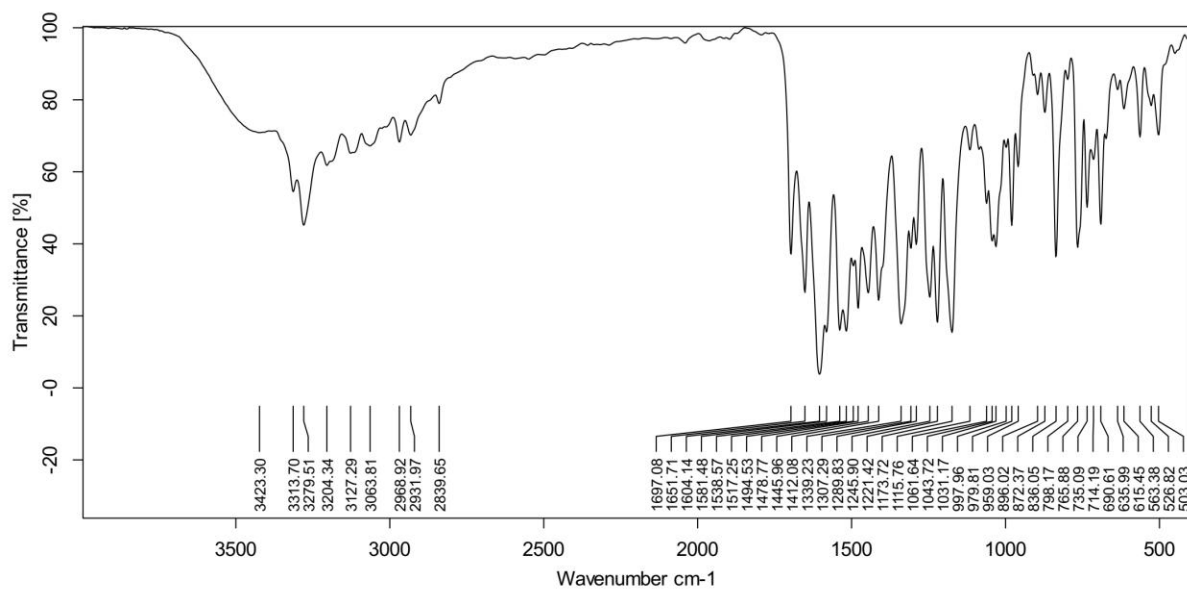


12_TRANS.7

11:31:37 Ö

14/05/2024

IR results of compound 12i

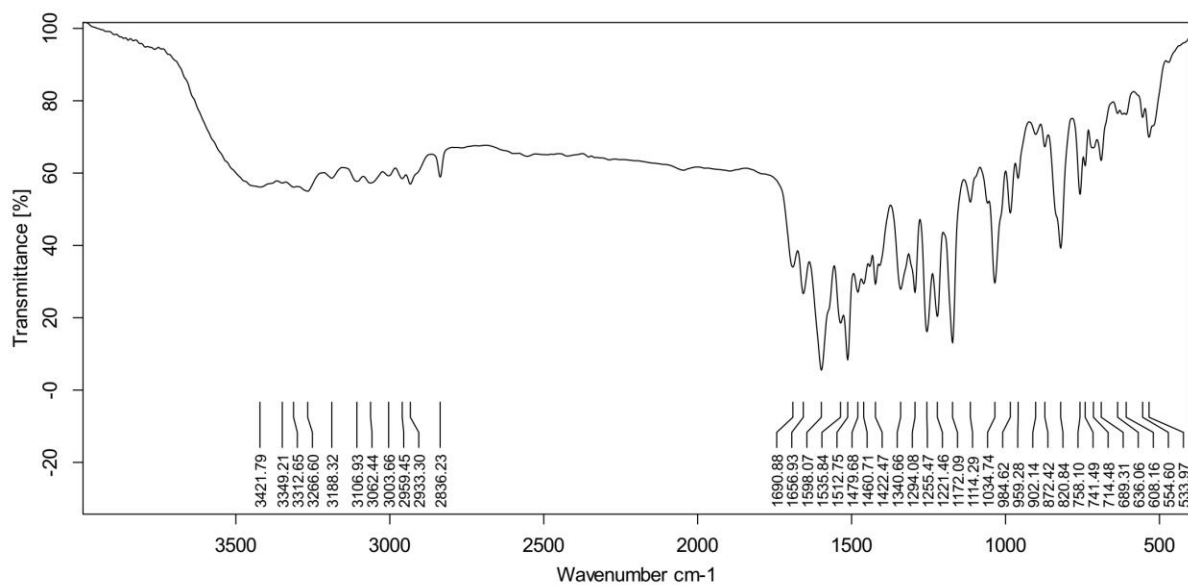


13_TRANS.2

11:37:29 Ö

14/05/2024

IR results of compound 13a

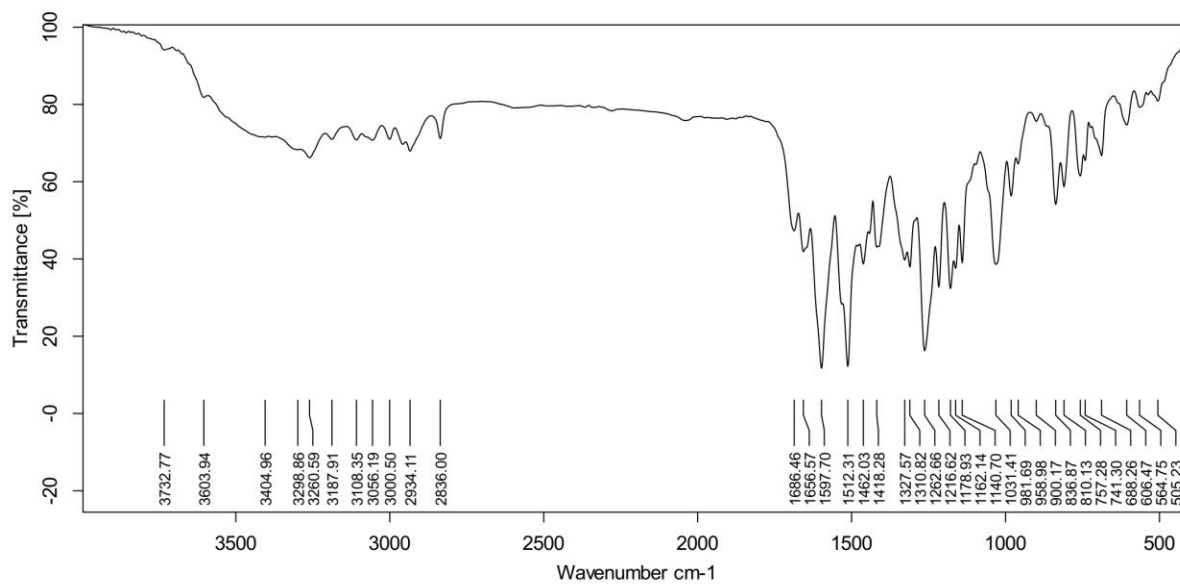


14_TRANS.3

11:58:34 Ö

14/05/2024

IR results of compound 13b

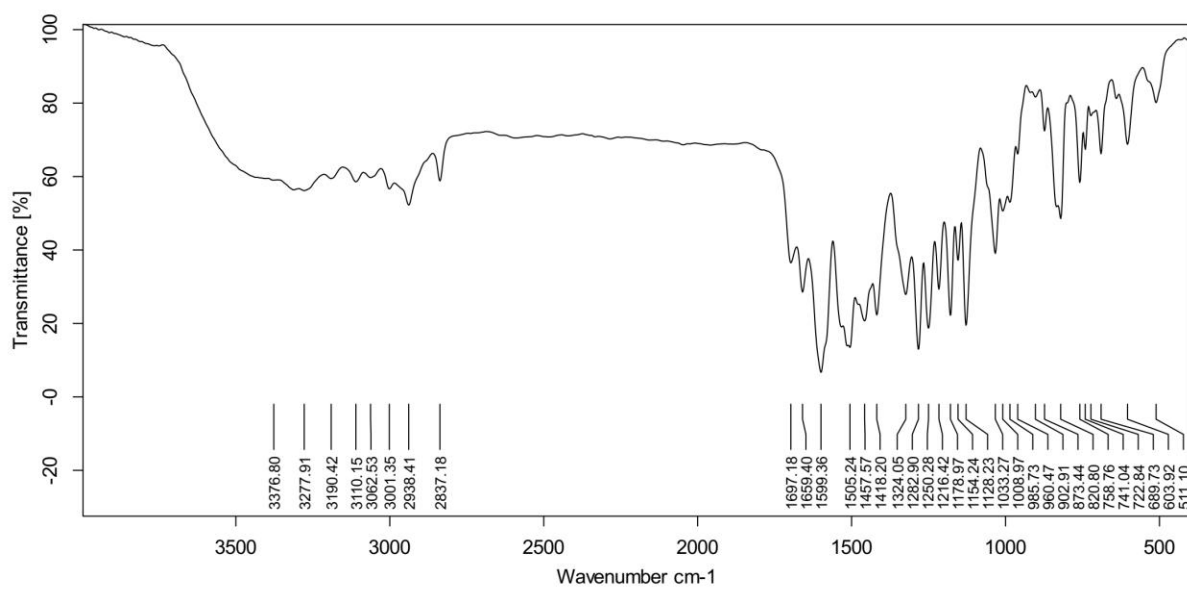


15_TRANS.4

12:10:53 ä

14/05/2024

IR results of compound 13c

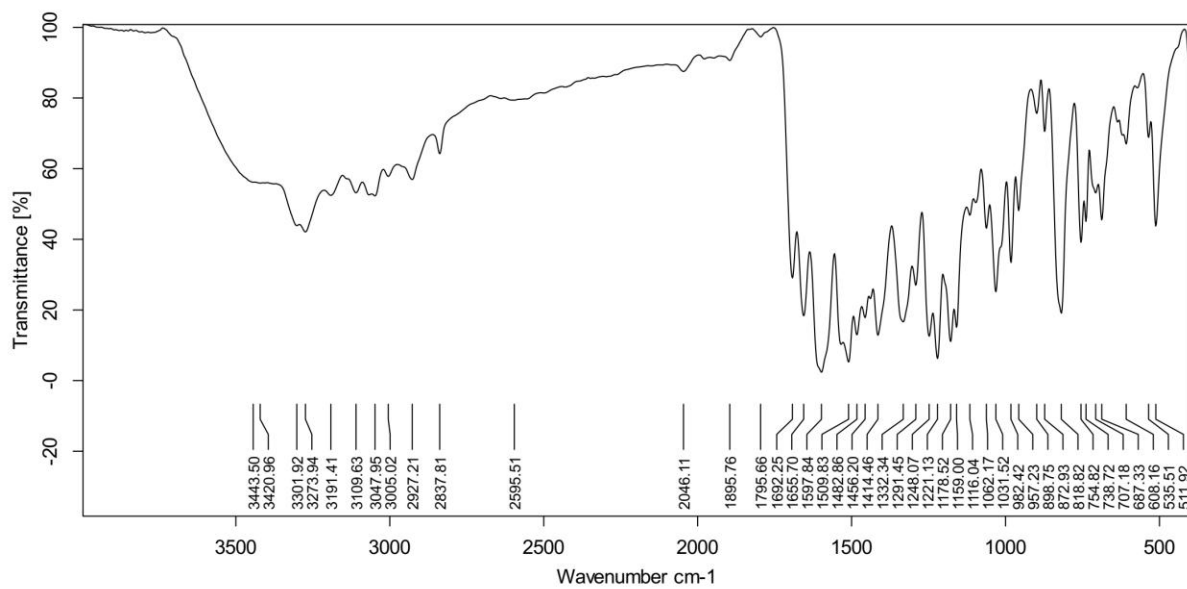


16_TRANS.3

12:10:08 ä

14/05/2024

IR results of compound 13d

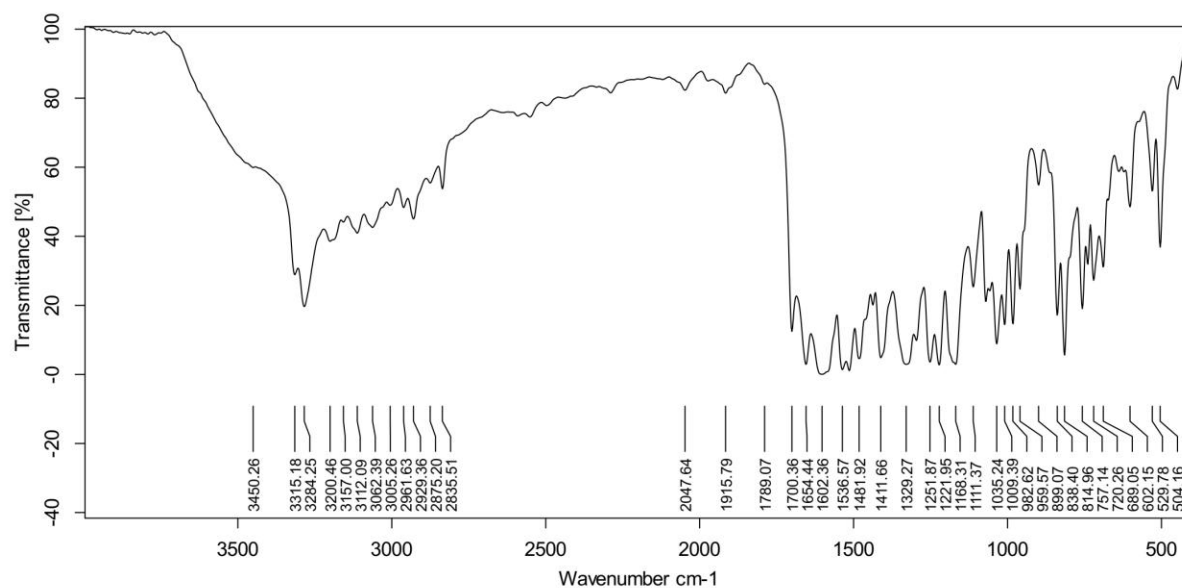


17_TRANS.2

12:17:08 ä

14/05/2024

IR results of compound 13e

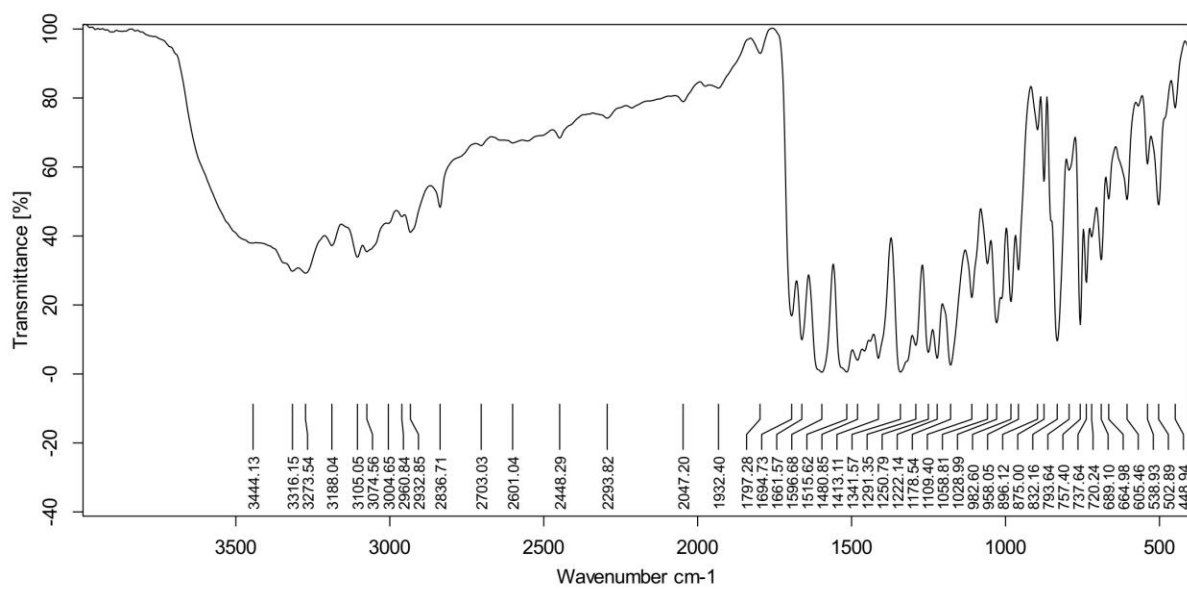


18_TRANS.3

12:22:48 ä

14/05/2024

IR results of compound 13f

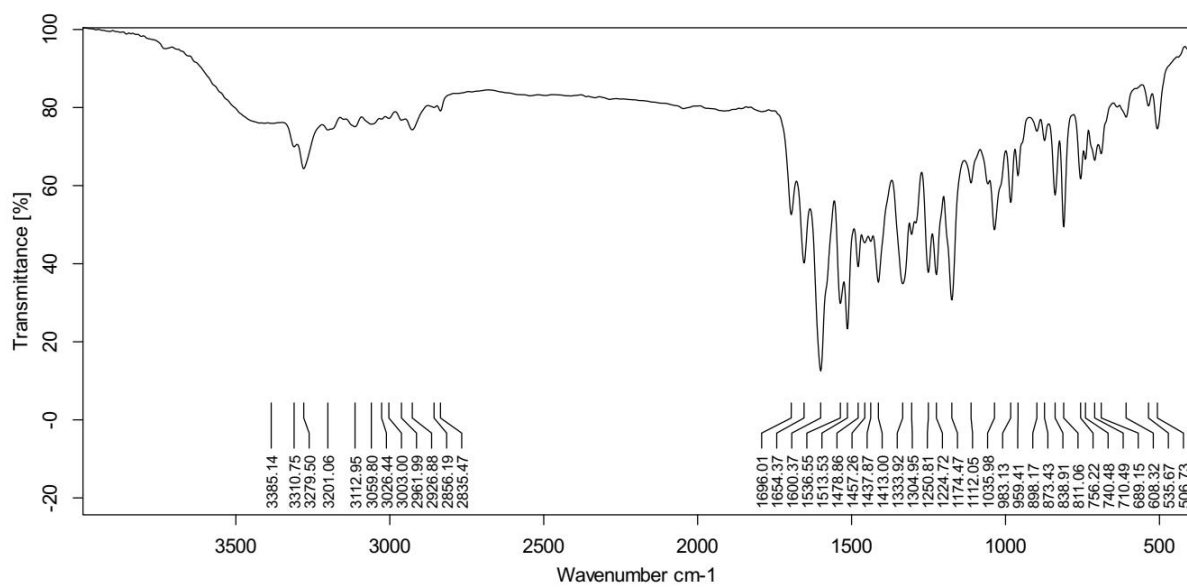


19_TRANS.1

12:28:21 ä

14/05/2024

IR results of compound 13g

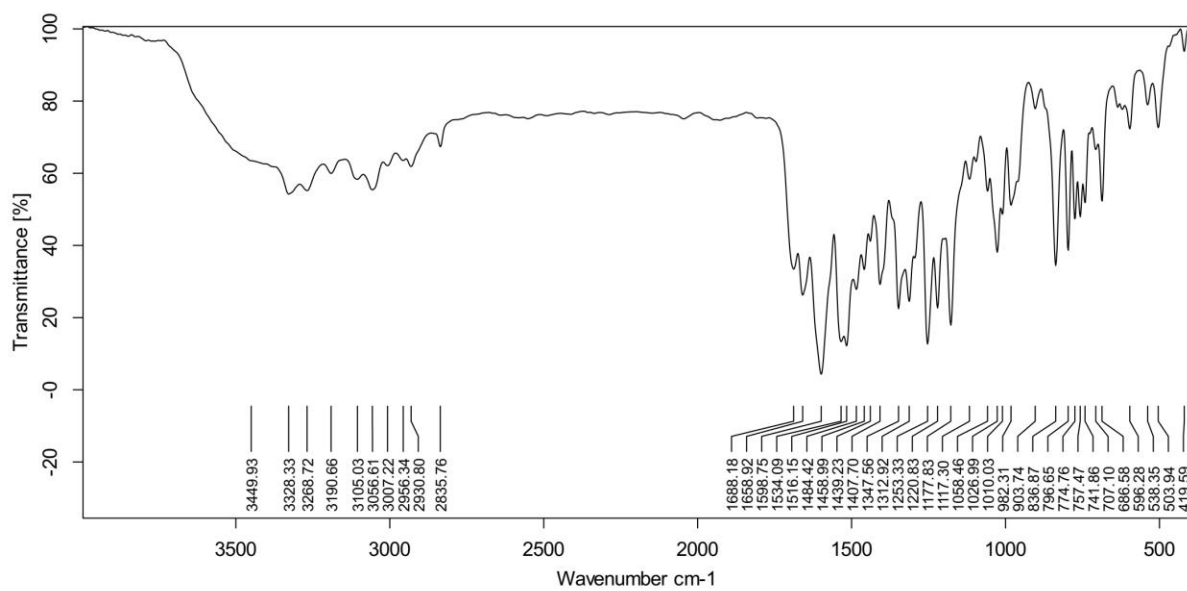


20_TRANS.2

12:35:43 ä

14/05/2024

IR results of compound 13h

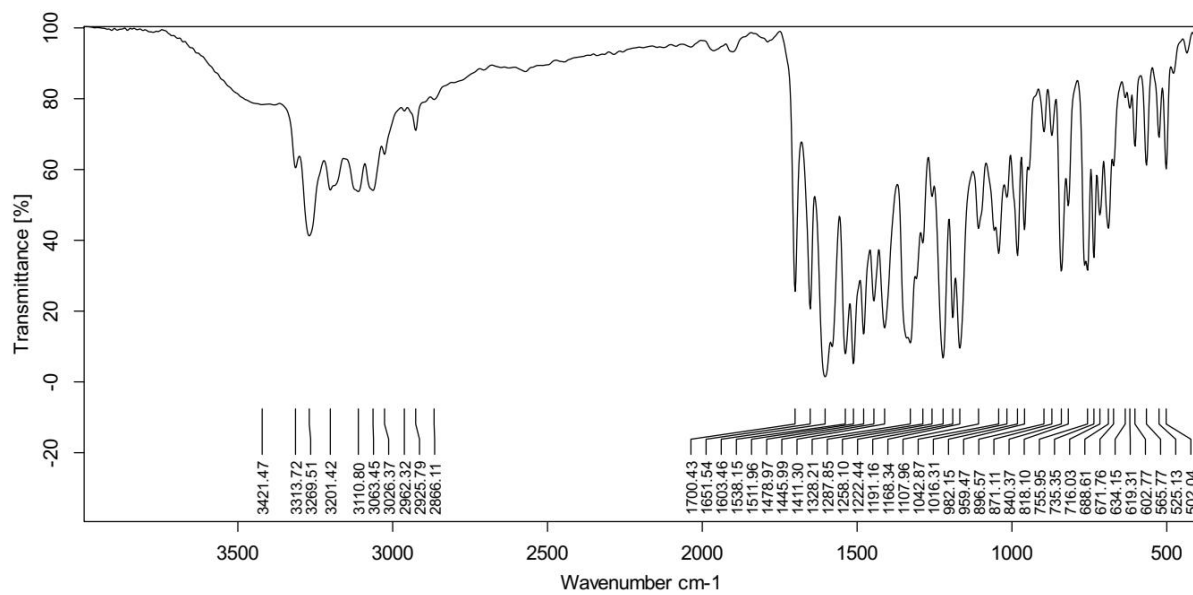


21_TRANS.2

12:43:19 ä

14/05/2024

IR results of compound 13i

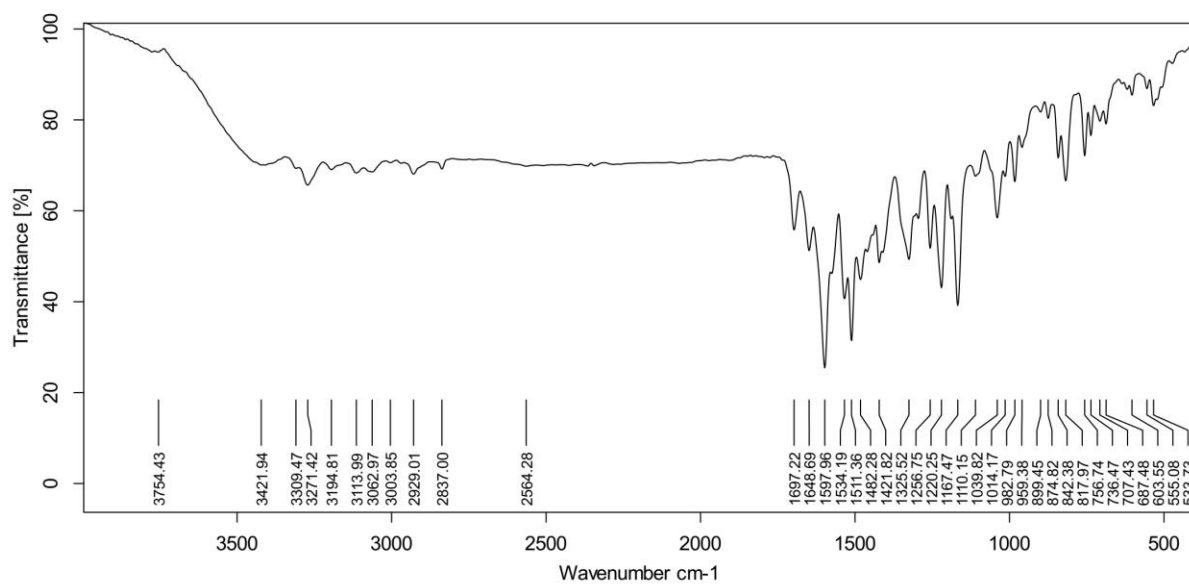


22_TRANS.3

12:54:31 ä

14/05/2024

IR results of compound 14a

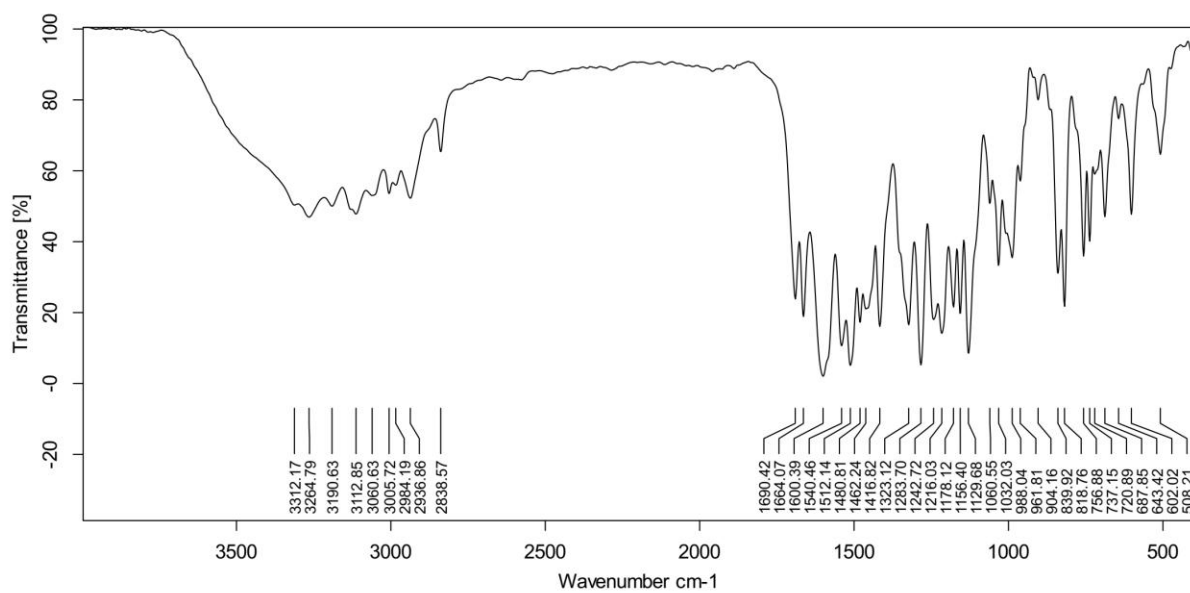


23_TRANS.2

12:59:37 ä

14/05/2024

IR results of compound 14b

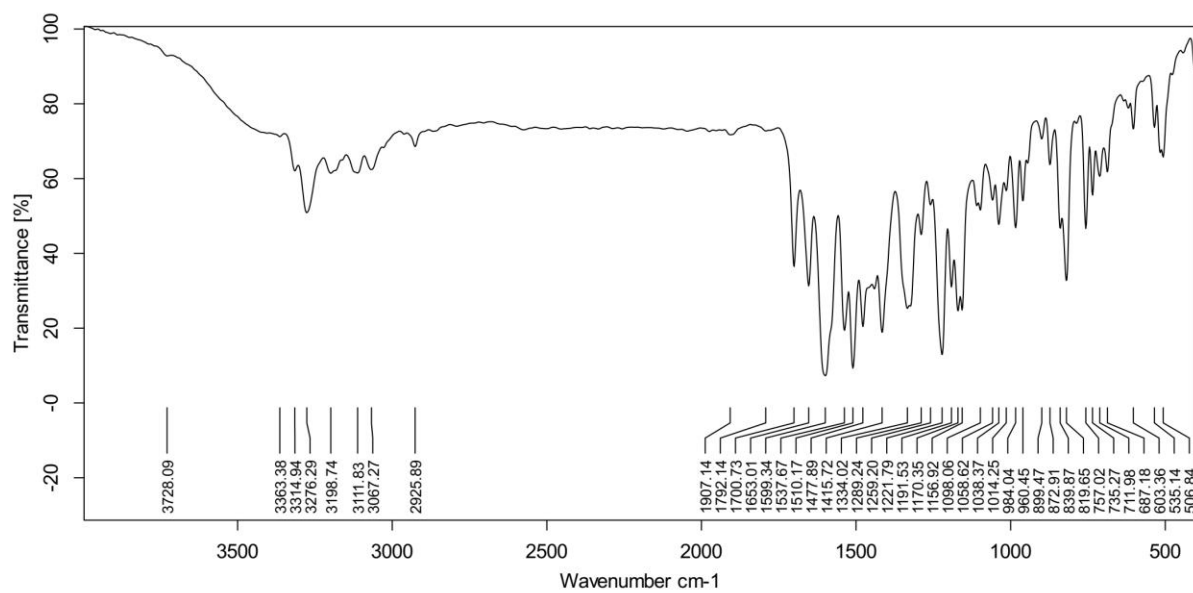


24_TRANS.4

01:06:13 ä

14/05/2024

IR results of compound 14c

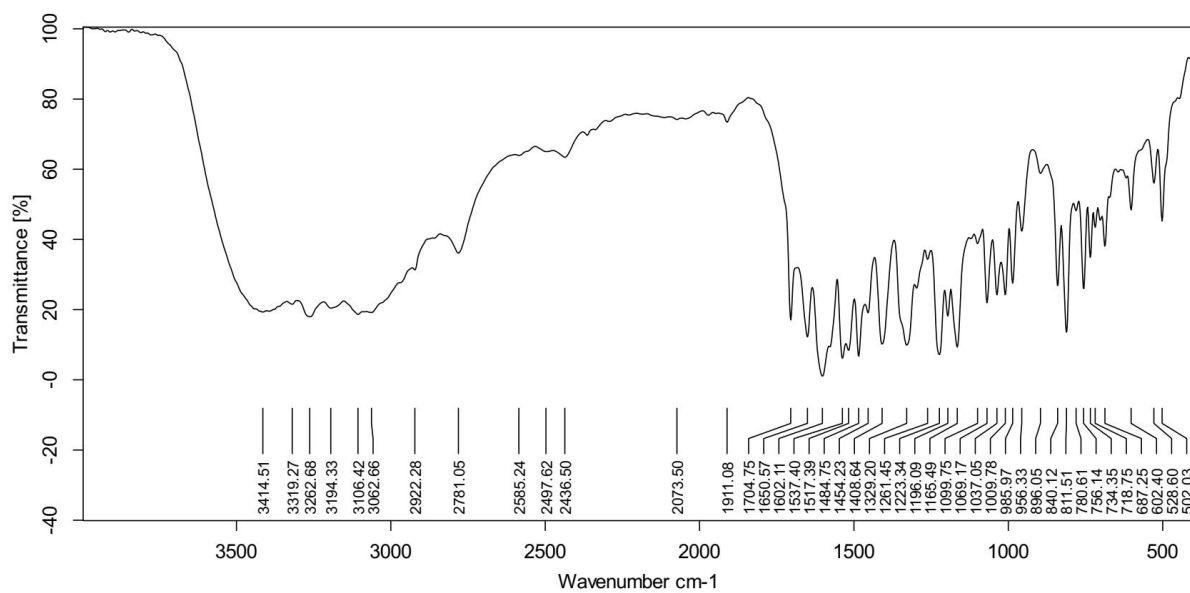


25_TRANS.1

01:12:01 ä

14/05/2024

IR results of compound 14d

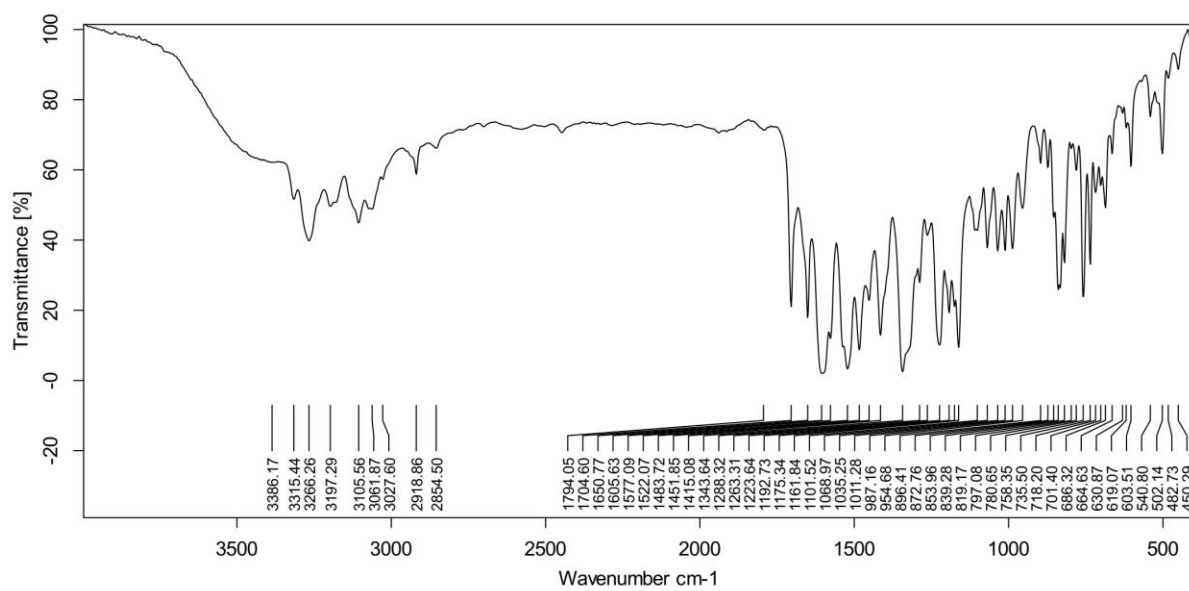


26_TRANS.2

01:18:55 ā

14/05/2024

IR results of compound 14e

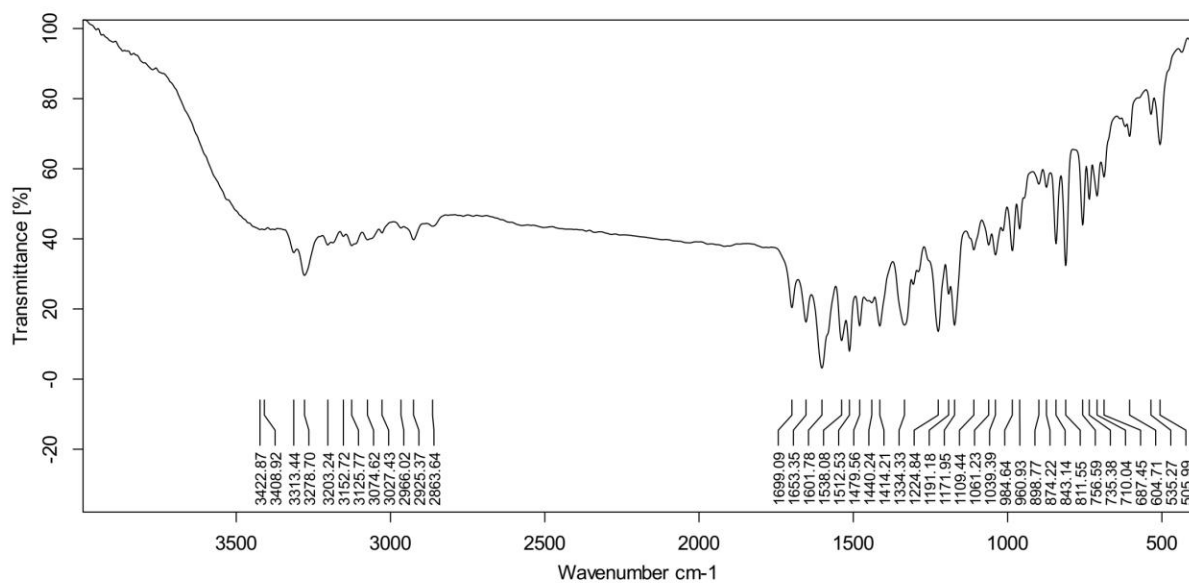


27_TRANS.1

01:25:22 ä

14/05/2024

IR results of compound 14f

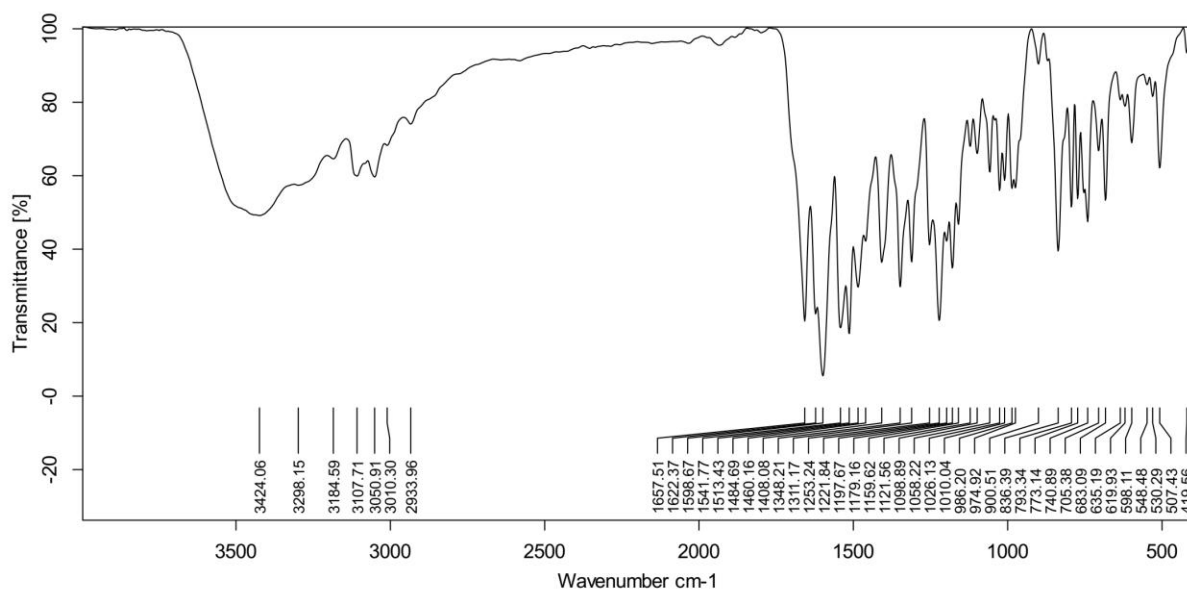


28_TRANS.1

01:36:31 ā

14/05/2024

IR results of compound 14g

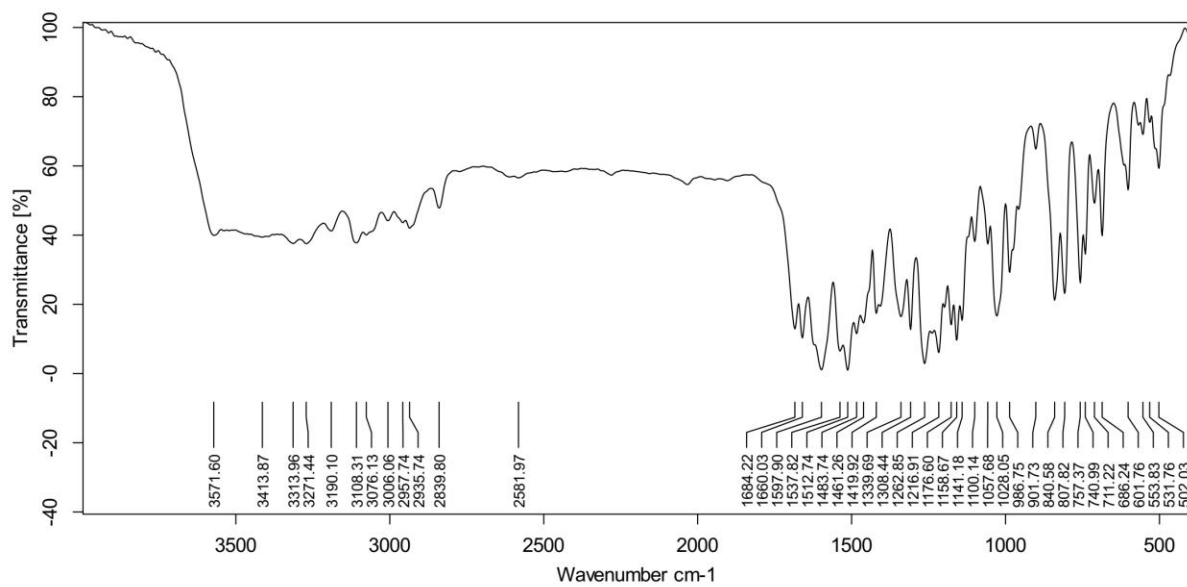


29_TRANS.2

01:35:54 ä

14/05/2024

IR results of compound 13h



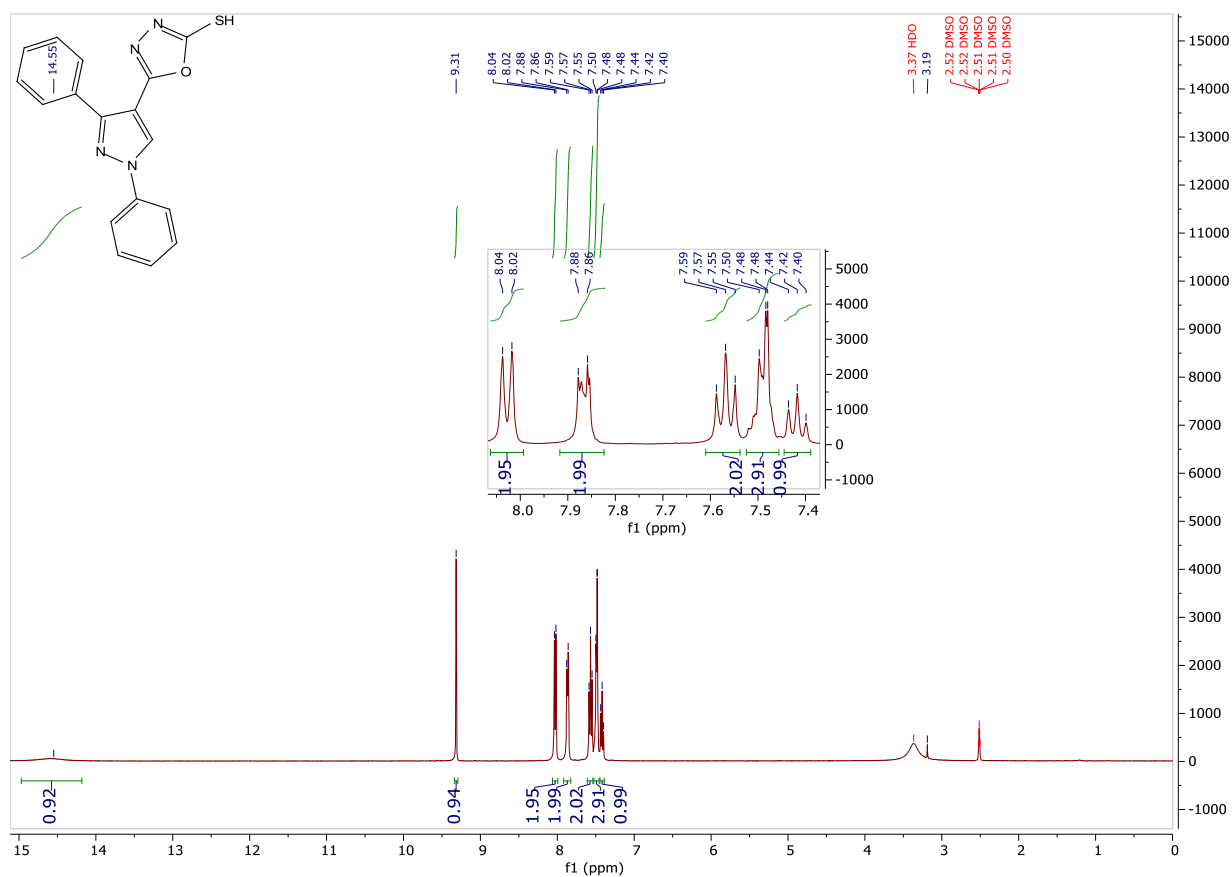
30_TRANS.2

01:40:18 ä

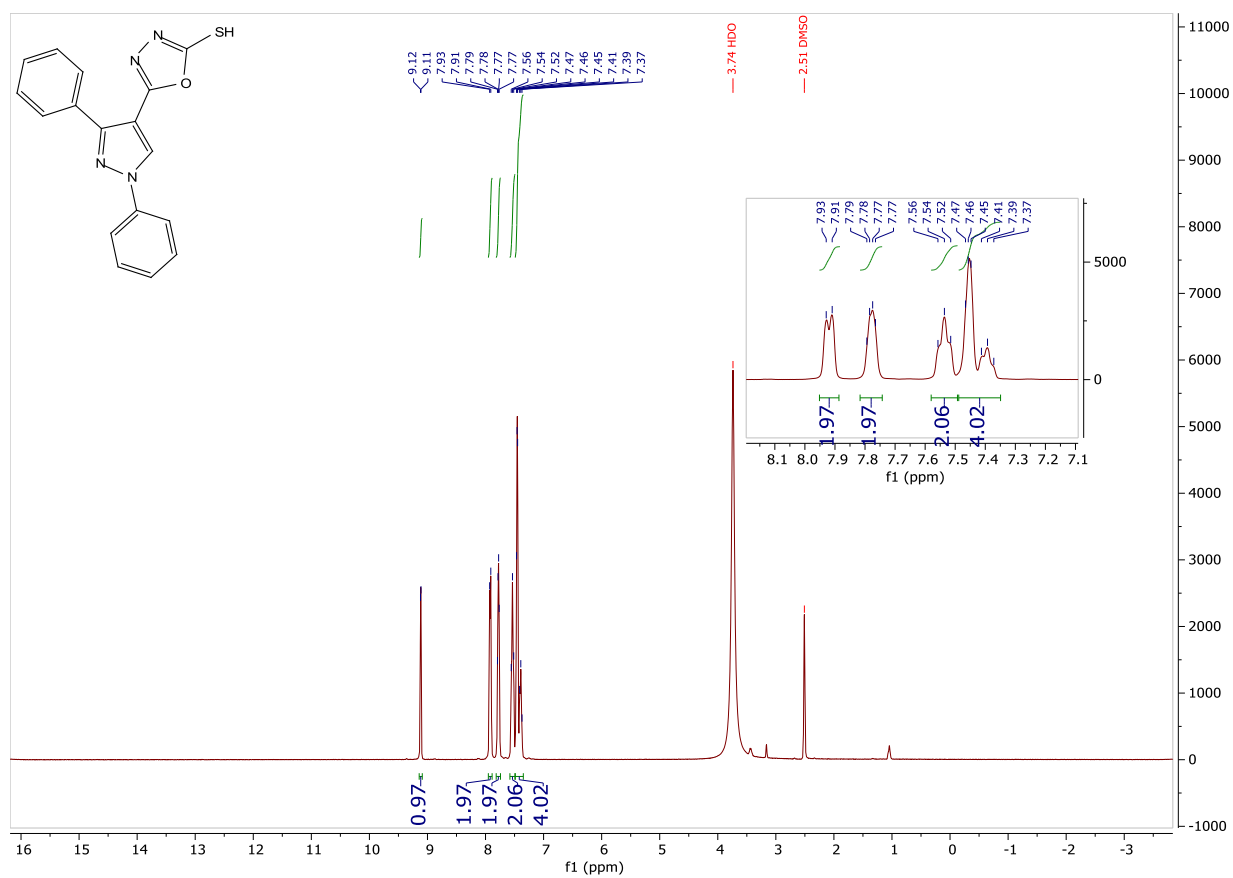
14/05/2024

IR results of compound 13i

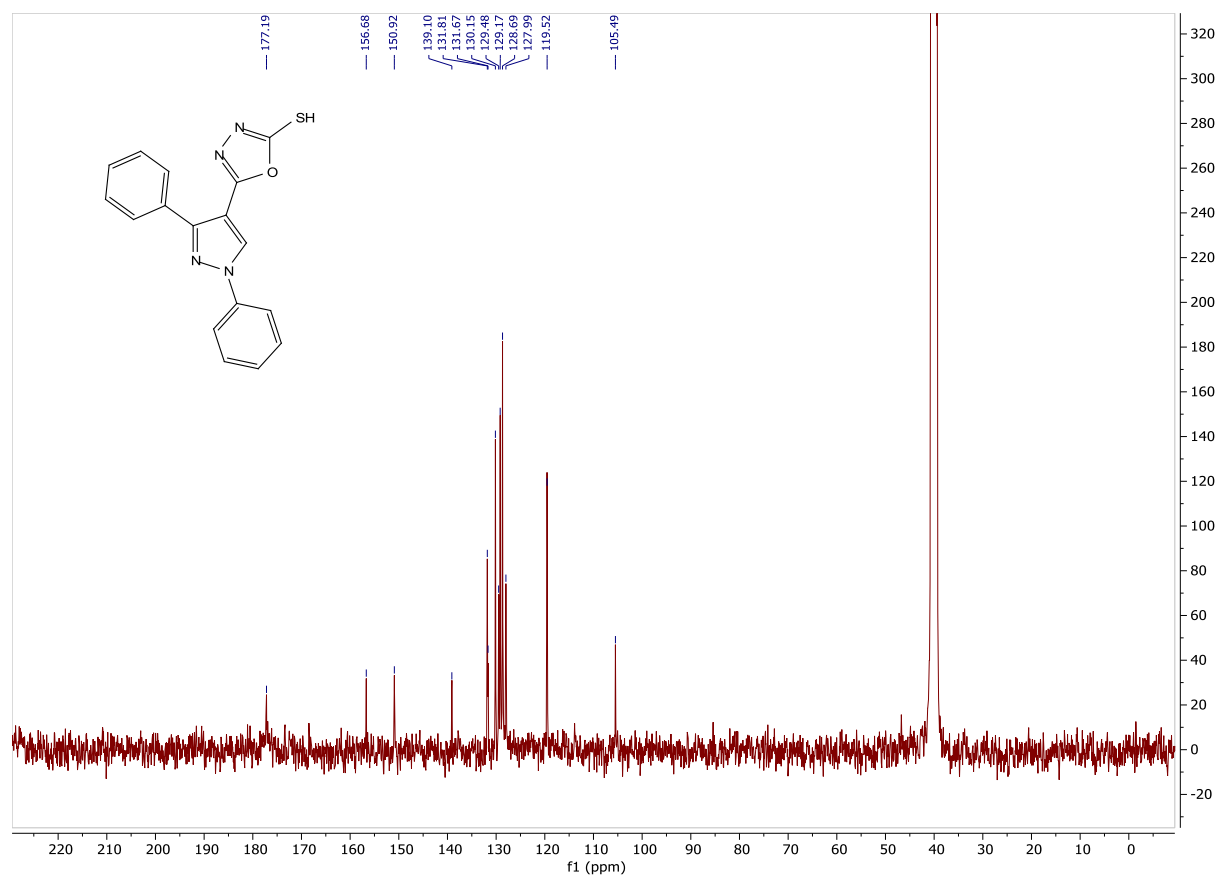
^1H NMR (400 MHz, DMSO- d_6) and ^{13}C NMR (100 MHz, DMSO- d_6) for the newly synthesized compounds



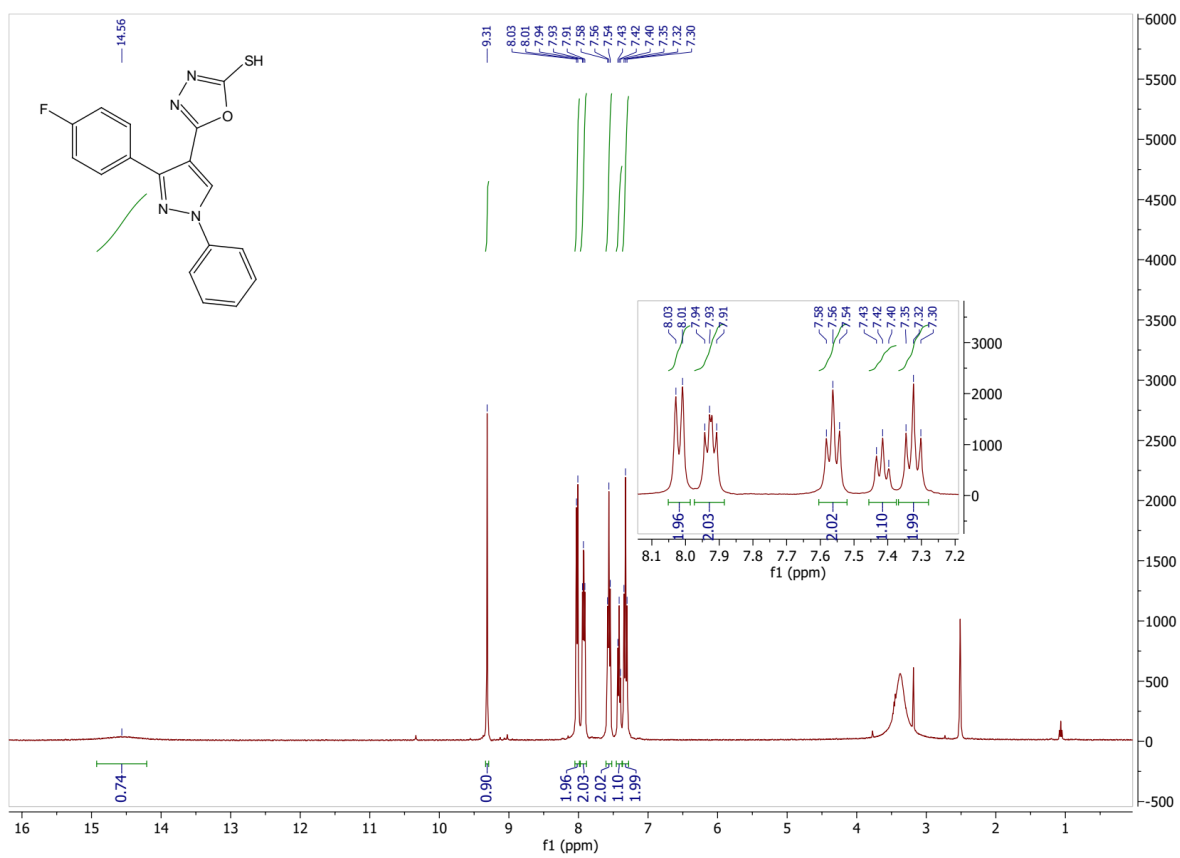
^1H NMR spectrum of compound **9a**



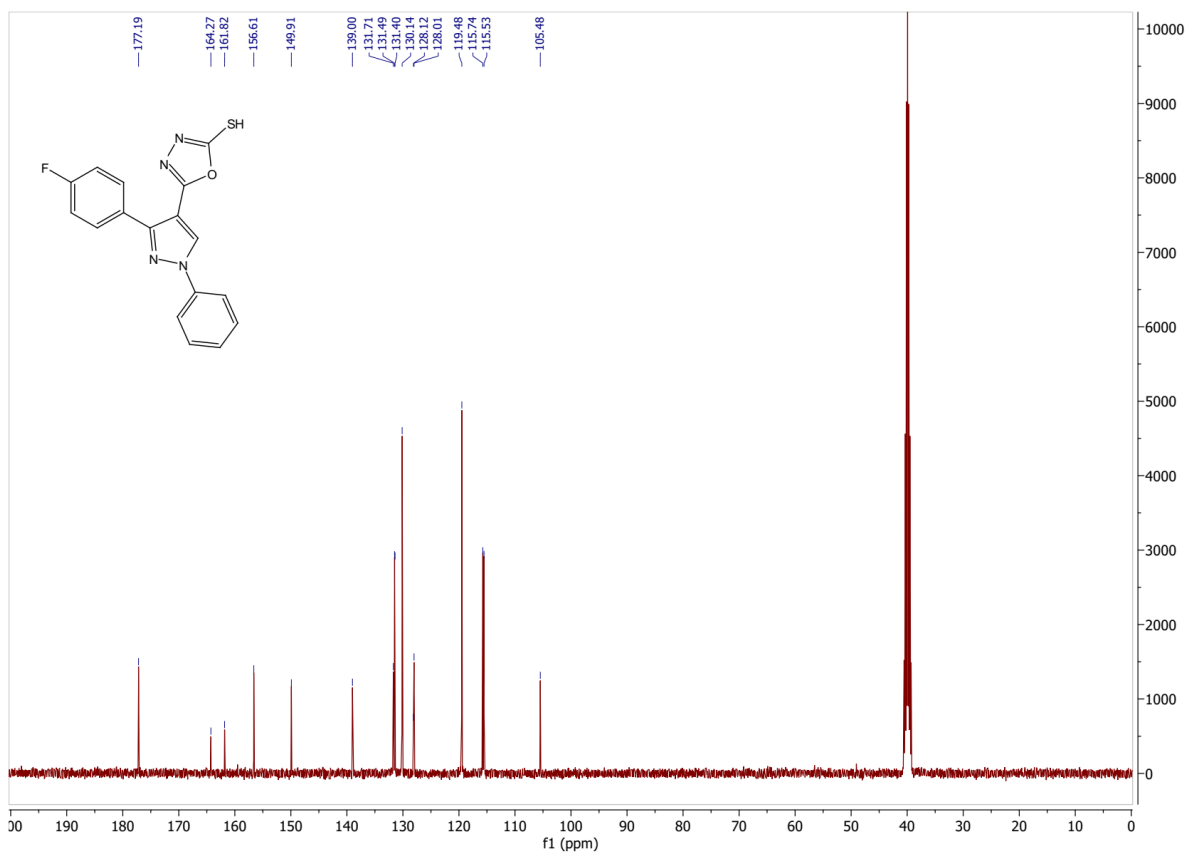
¹H NMR spectrum of compound **9a** (D₂O Treated)



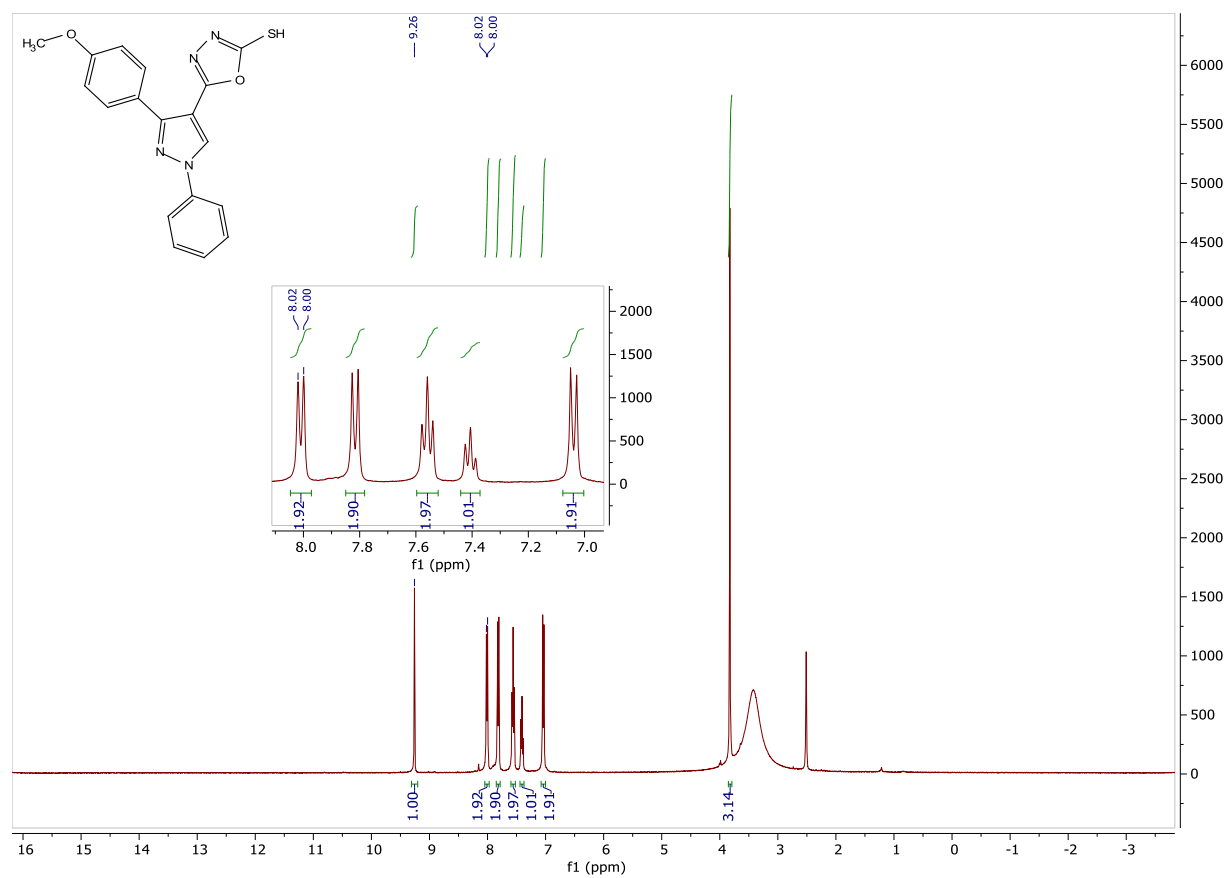
^{13}C NMR spectrum of compound **9a**



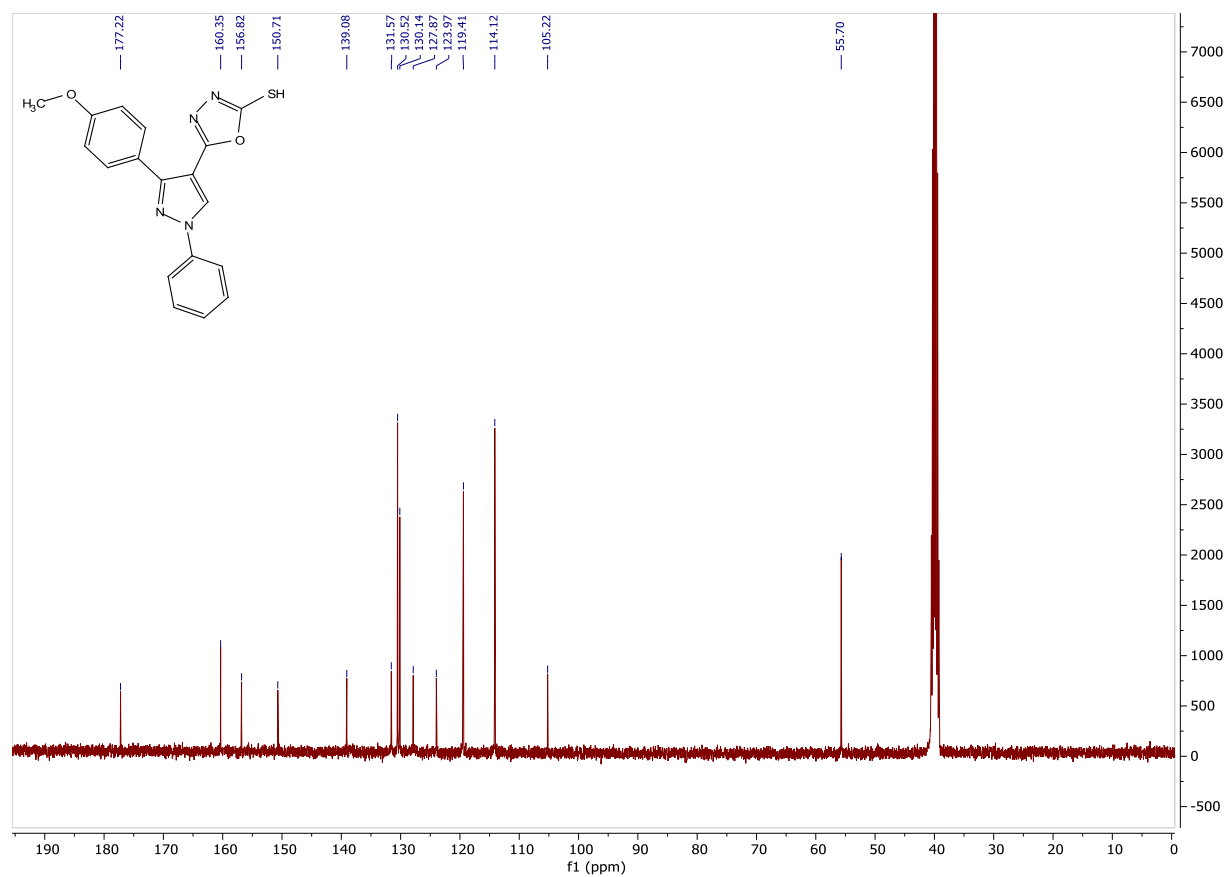
¹H NMR spectrum of compound **9b**



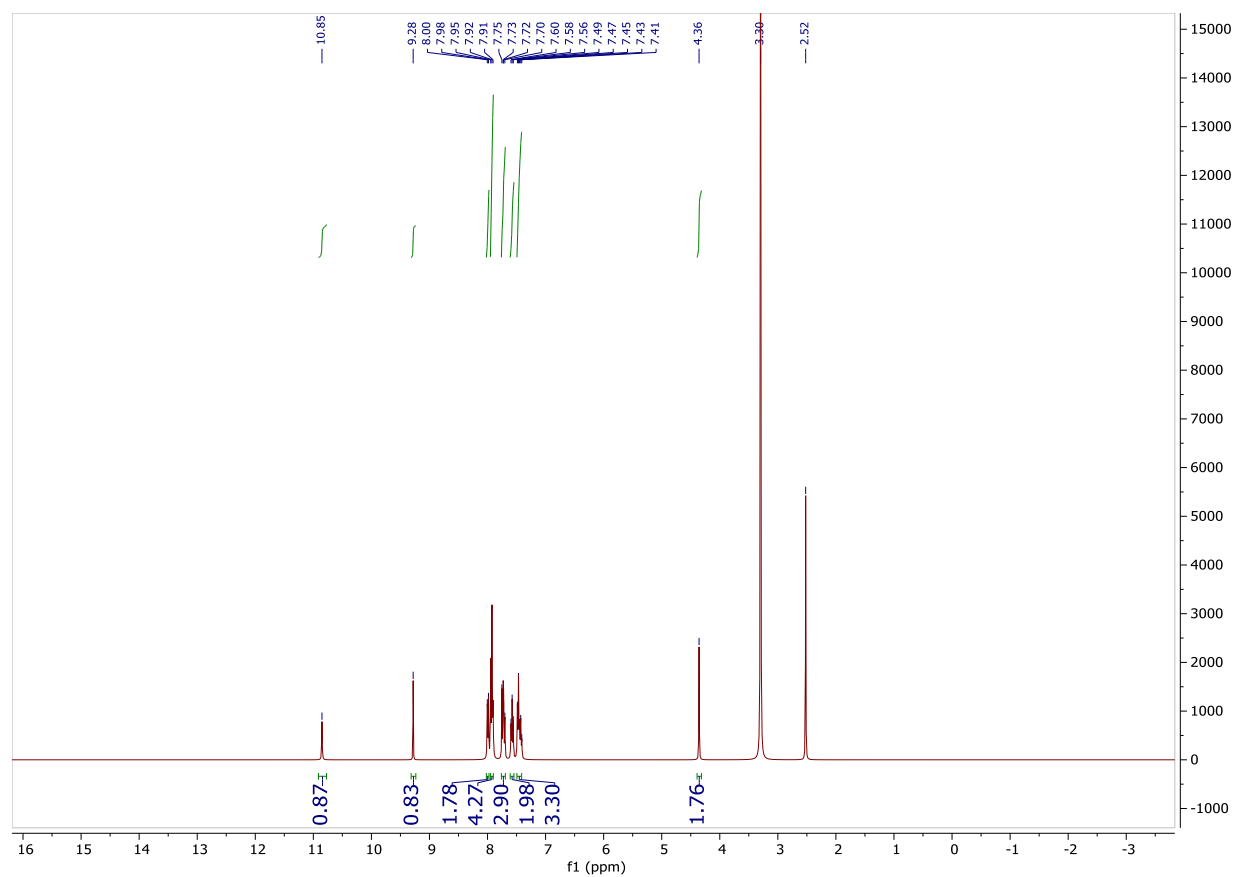
^{13}C NMR spectrum of compound **9b**



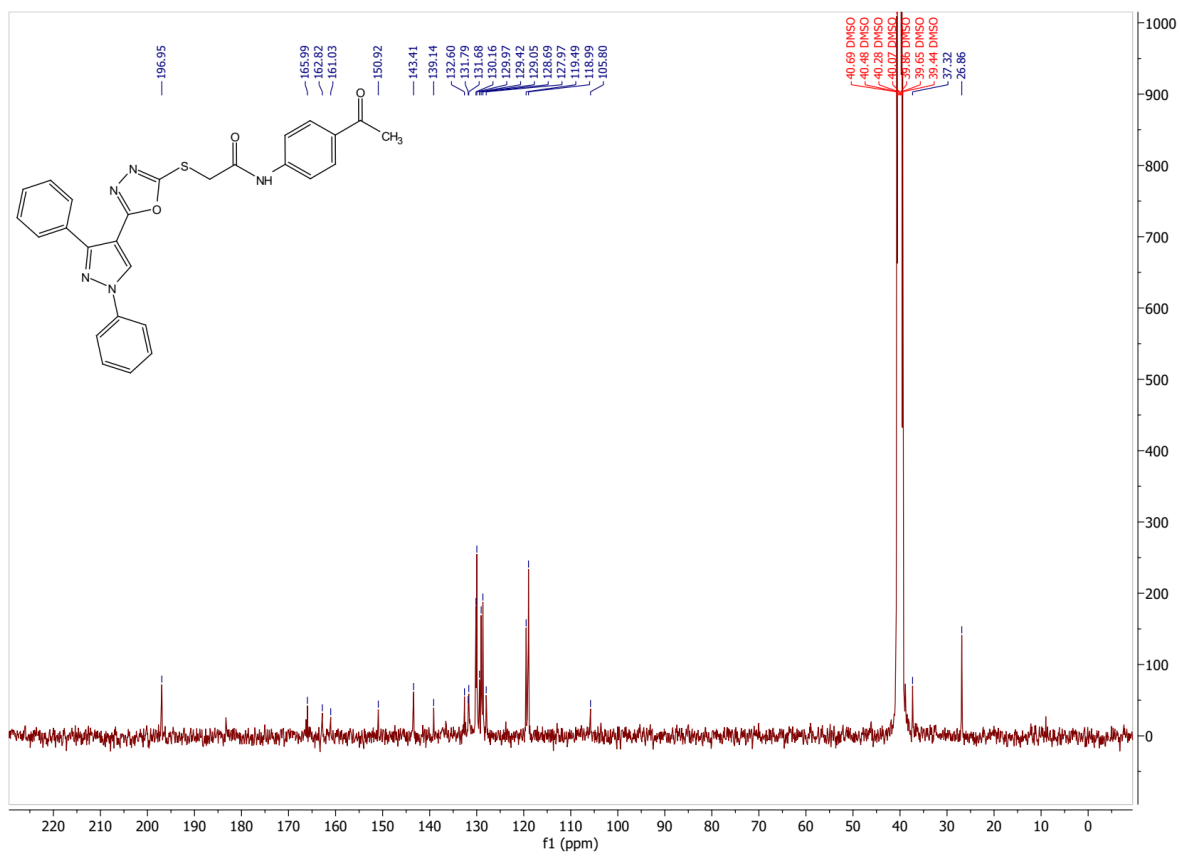
¹H NMR spectrum of compound **9c**



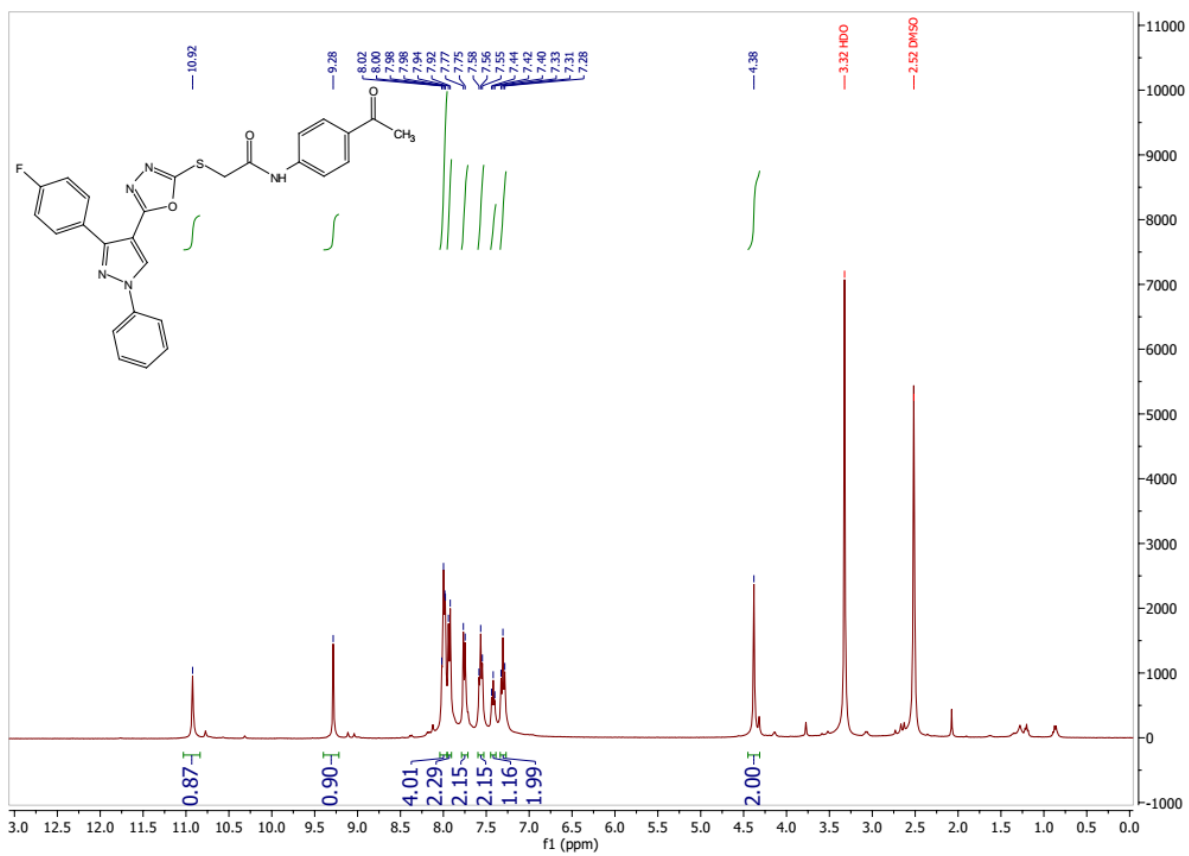
^{13}C NMR spectrum of compound **9c**



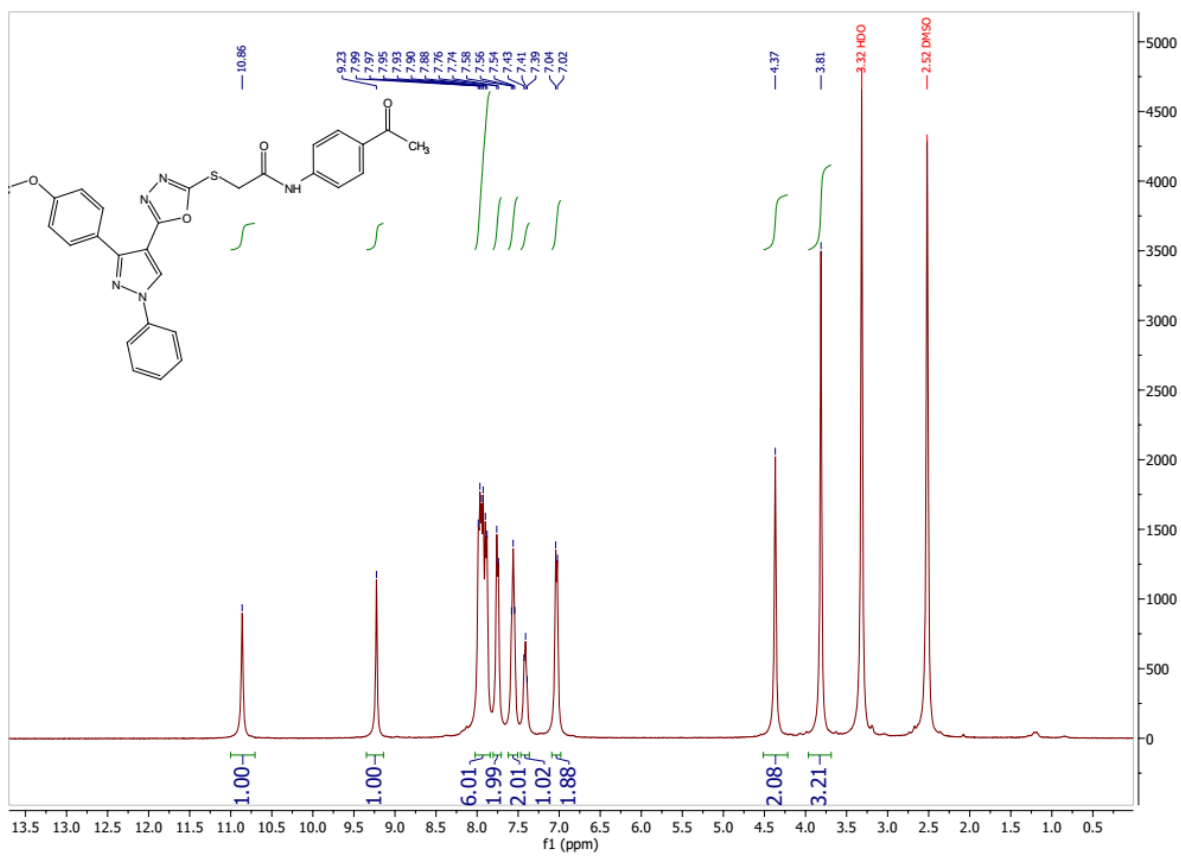
¹H NMR spectrum of compound **10a**



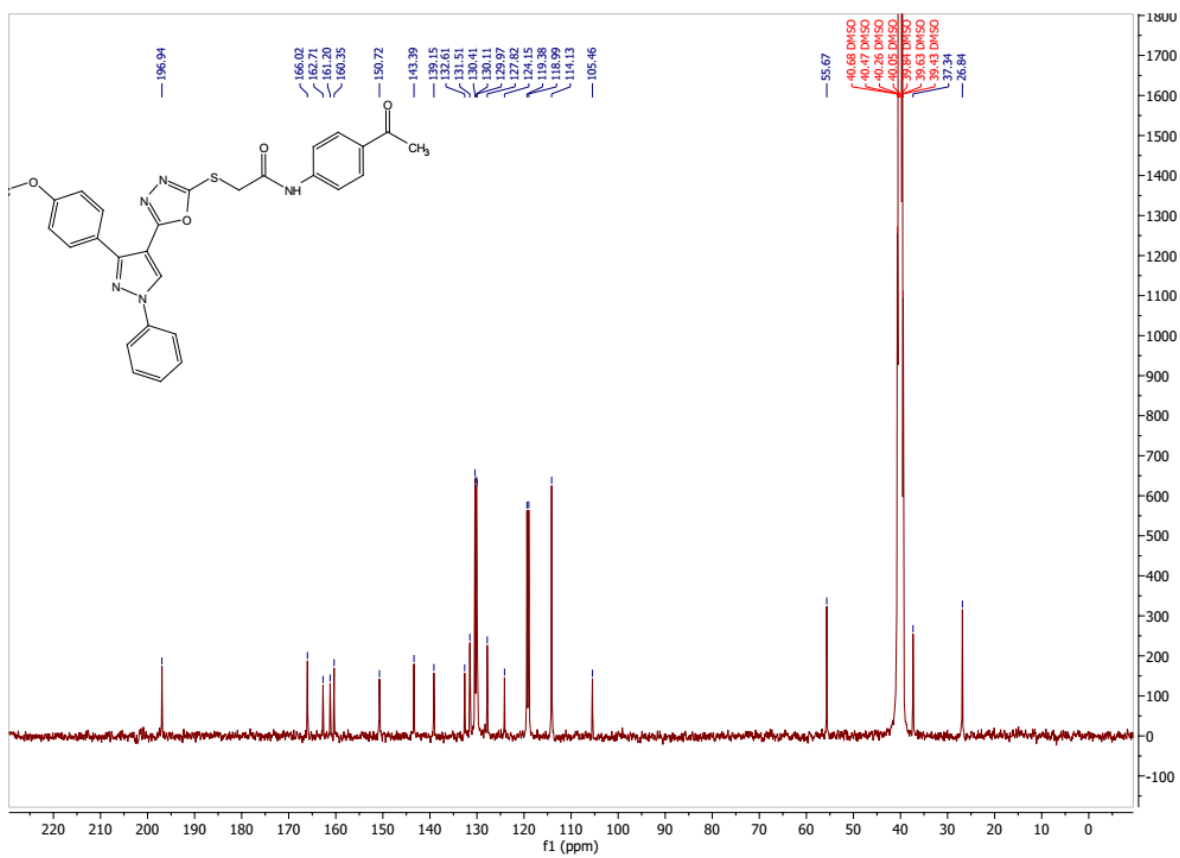
^{13}C NMR spectrum of compound **10a**



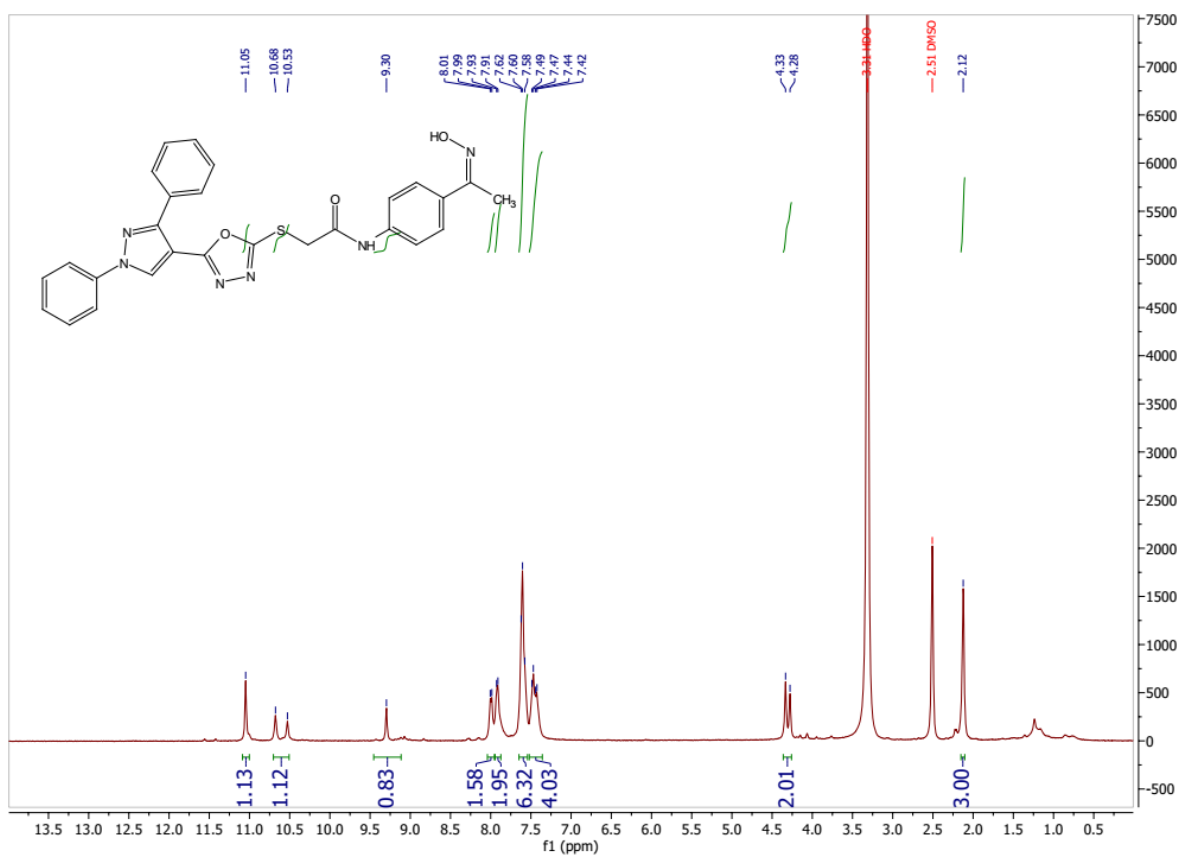
^1H NMR spectrum of compound **10b**



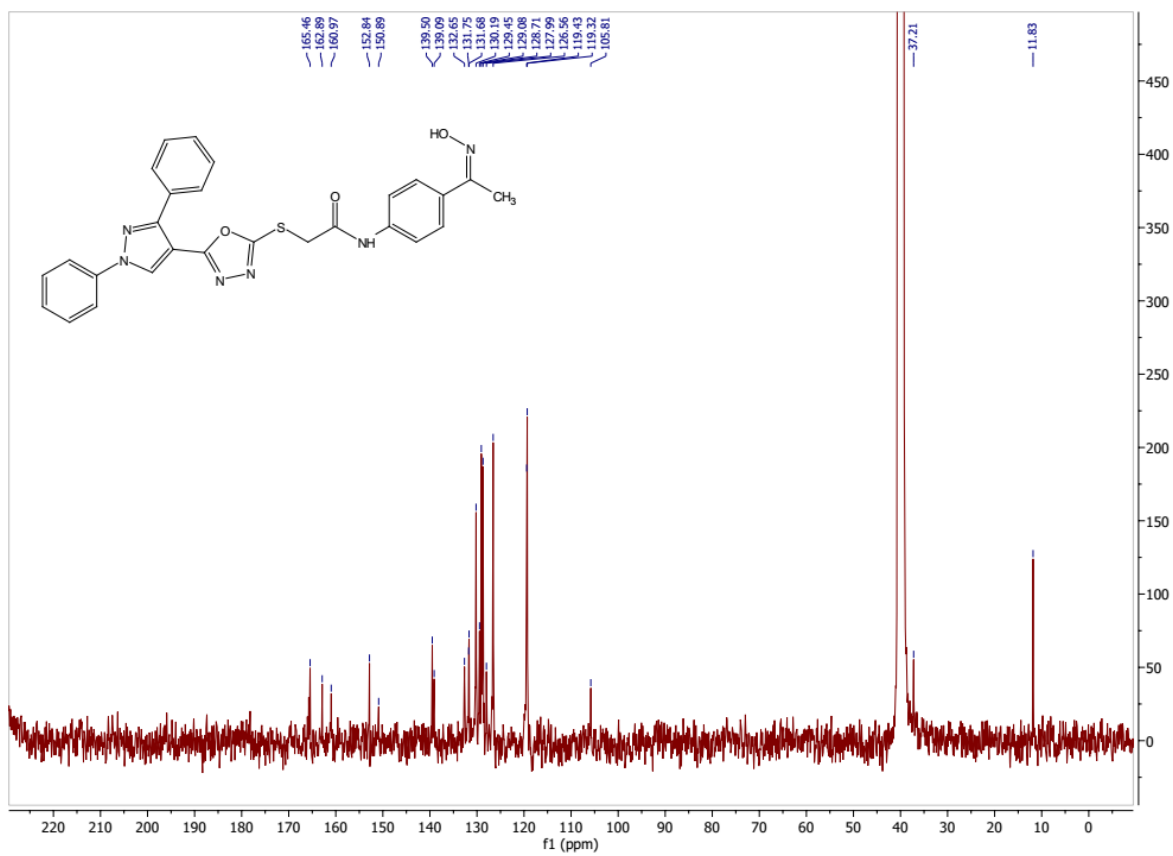
¹H NMR spectrum of compound **10c**



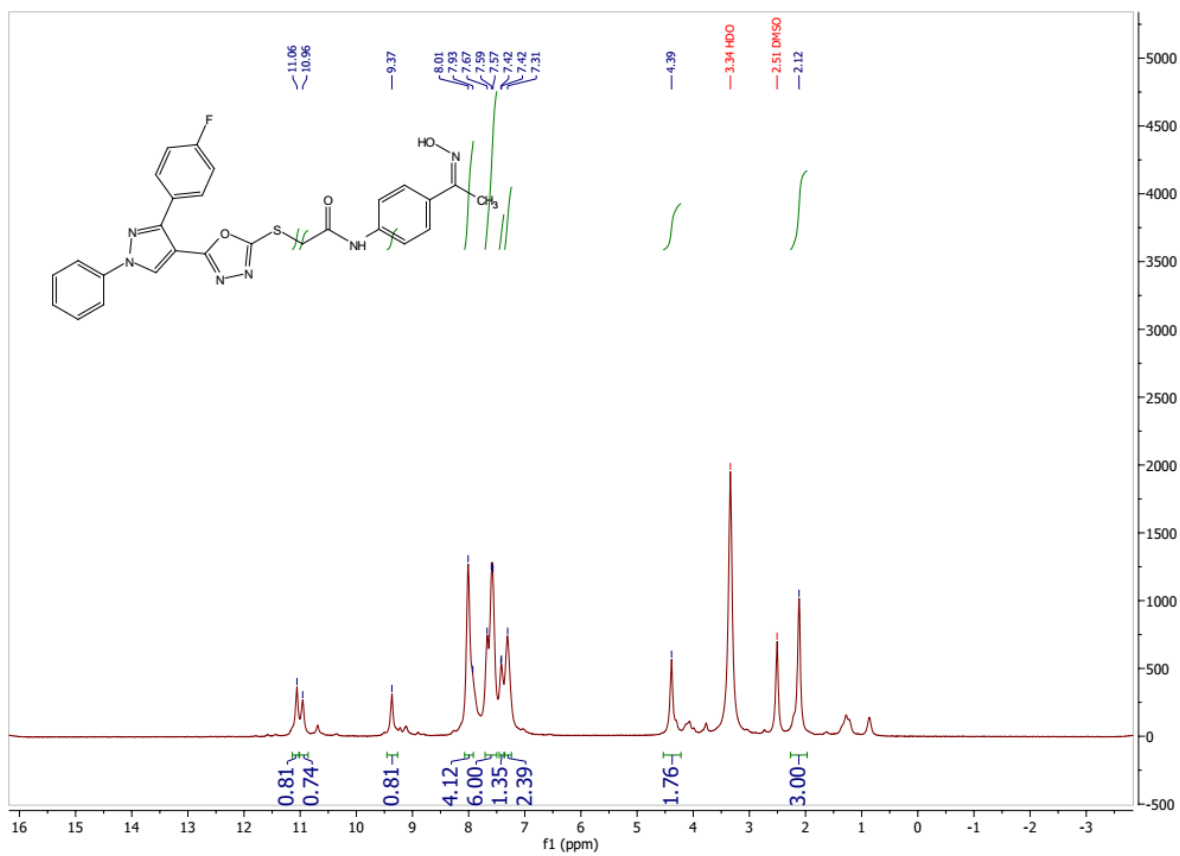
¹³C NMR spectrum of compound **10c**



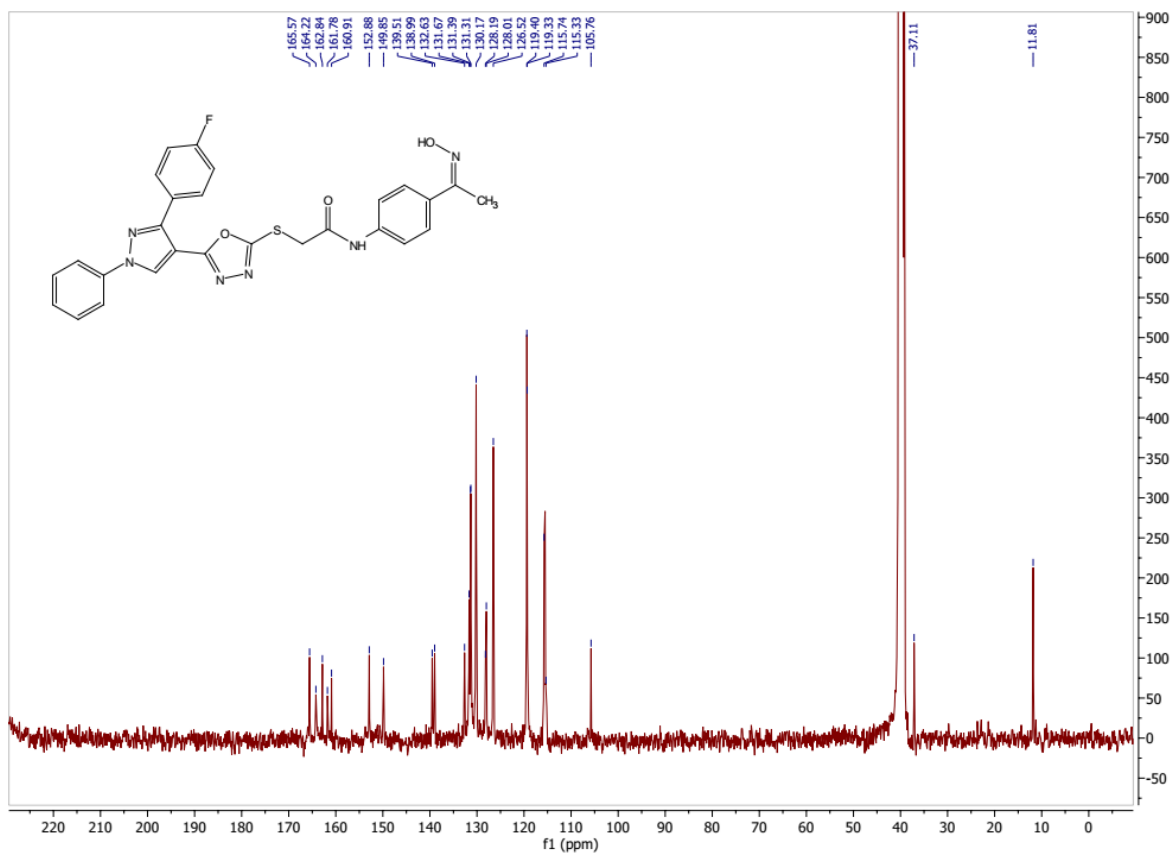
¹H NMR spectrum of compound **11a**



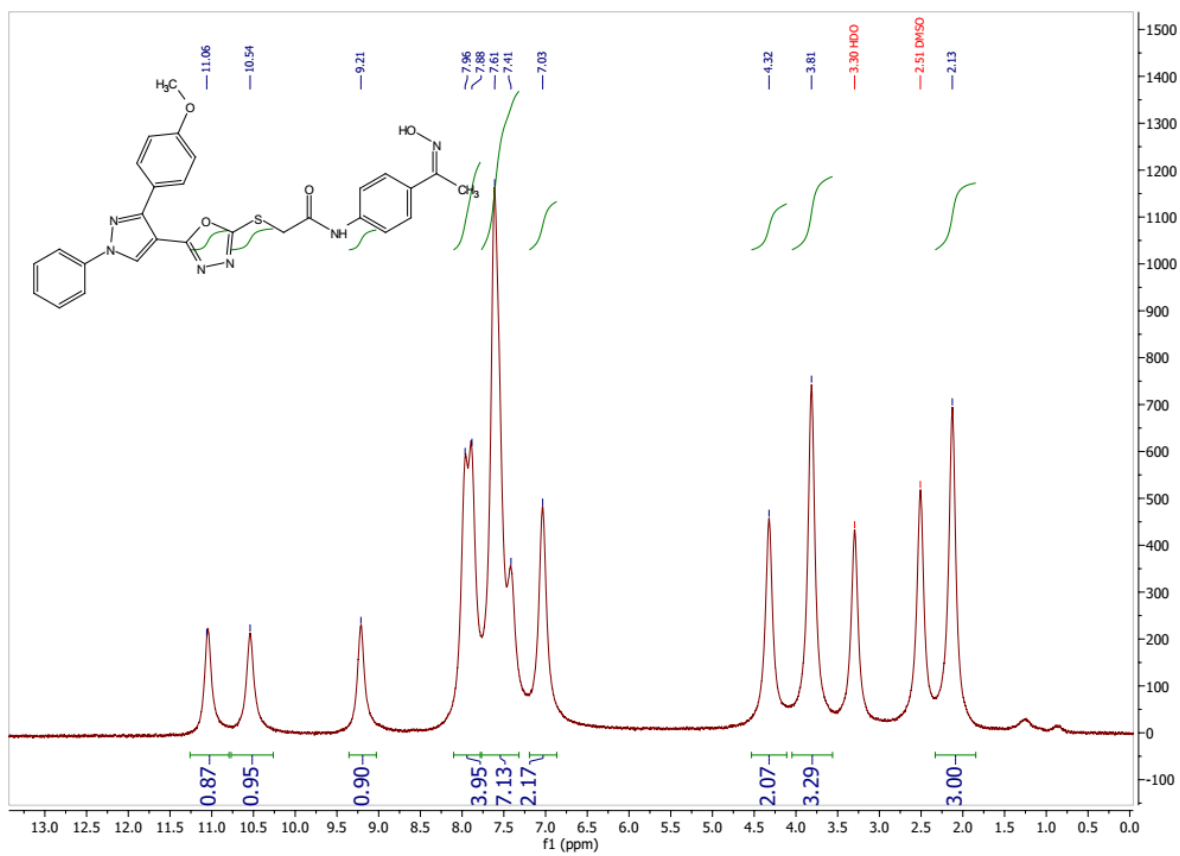
¹³C NMR spectrum of compound **11a**



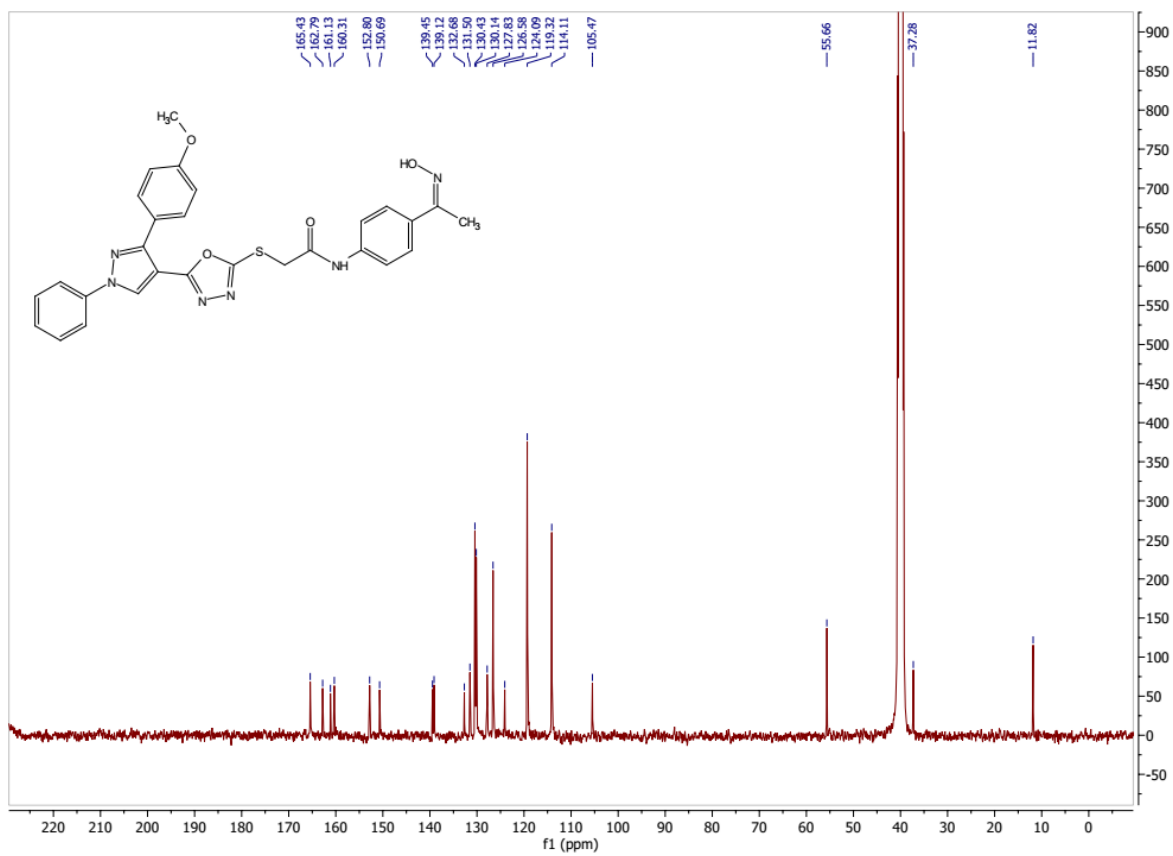
^1H NMR spectrum of compound **11b**



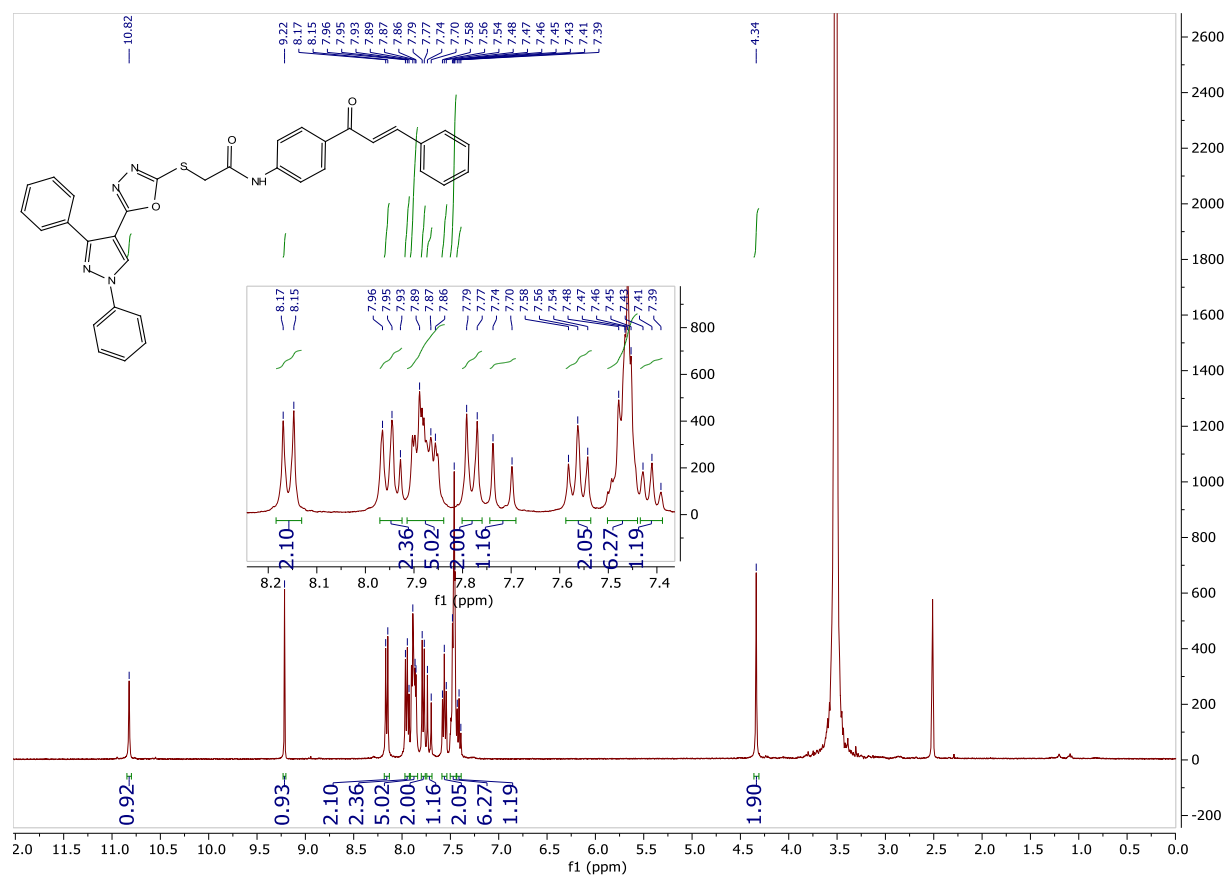
^{13}C NMR spectrum of compound **11b**



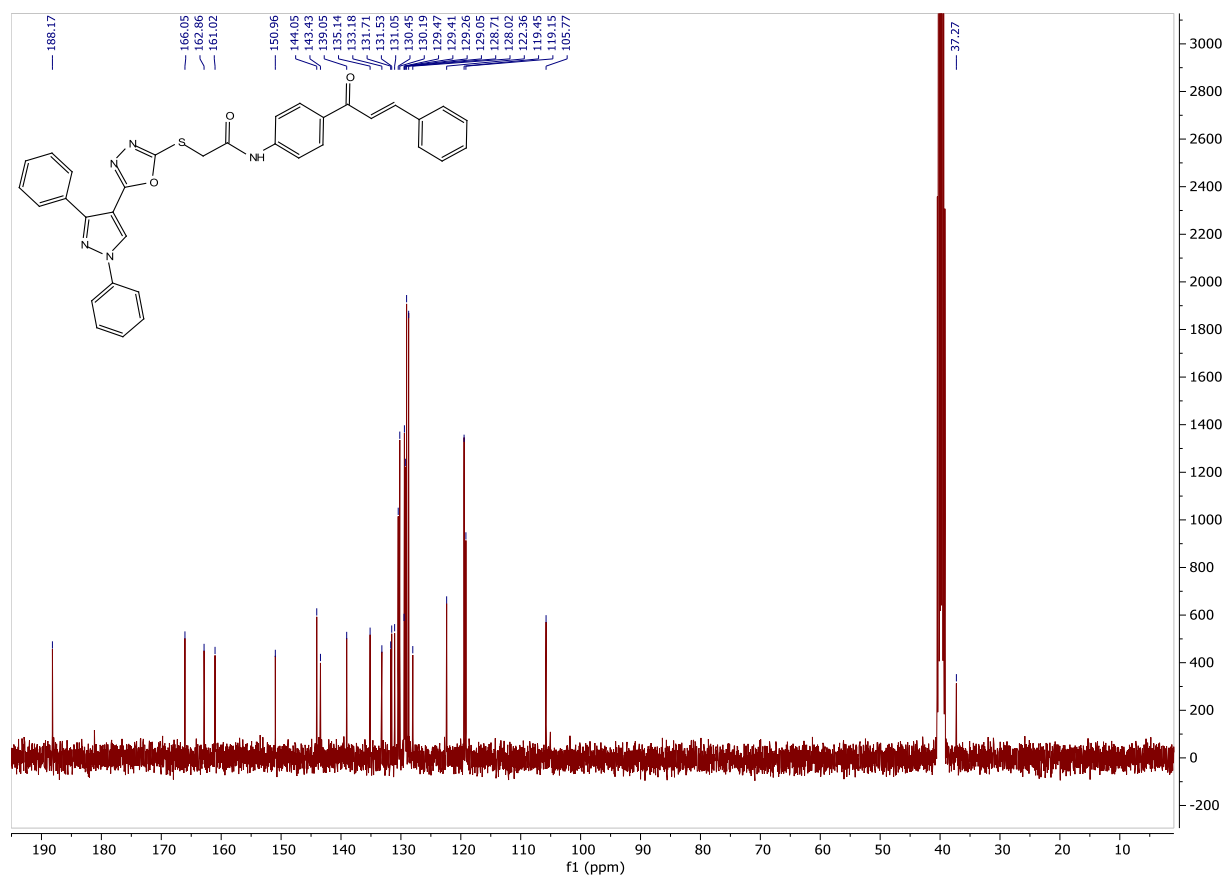
¹³C NMR spectrum of compound **11c**



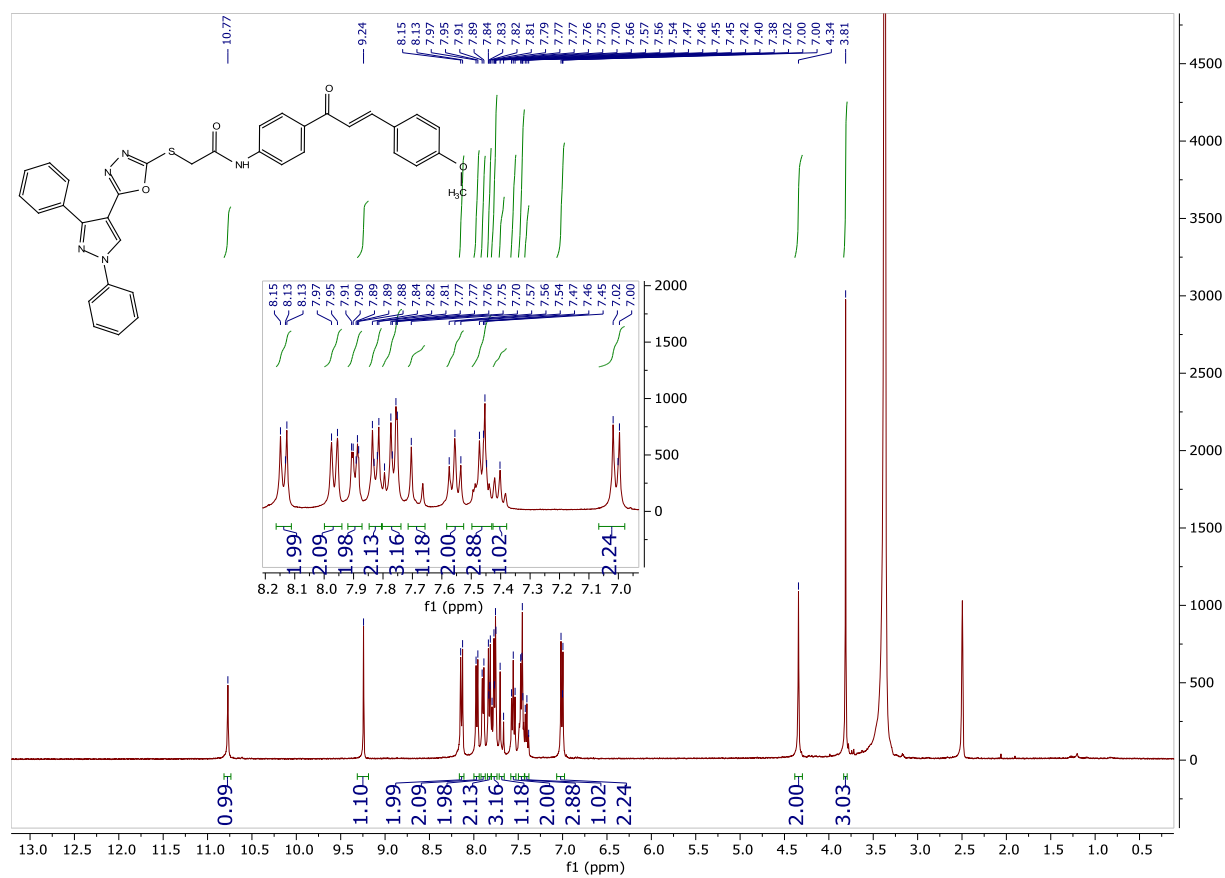
^{13}C NMR spectrum of compound **11c**



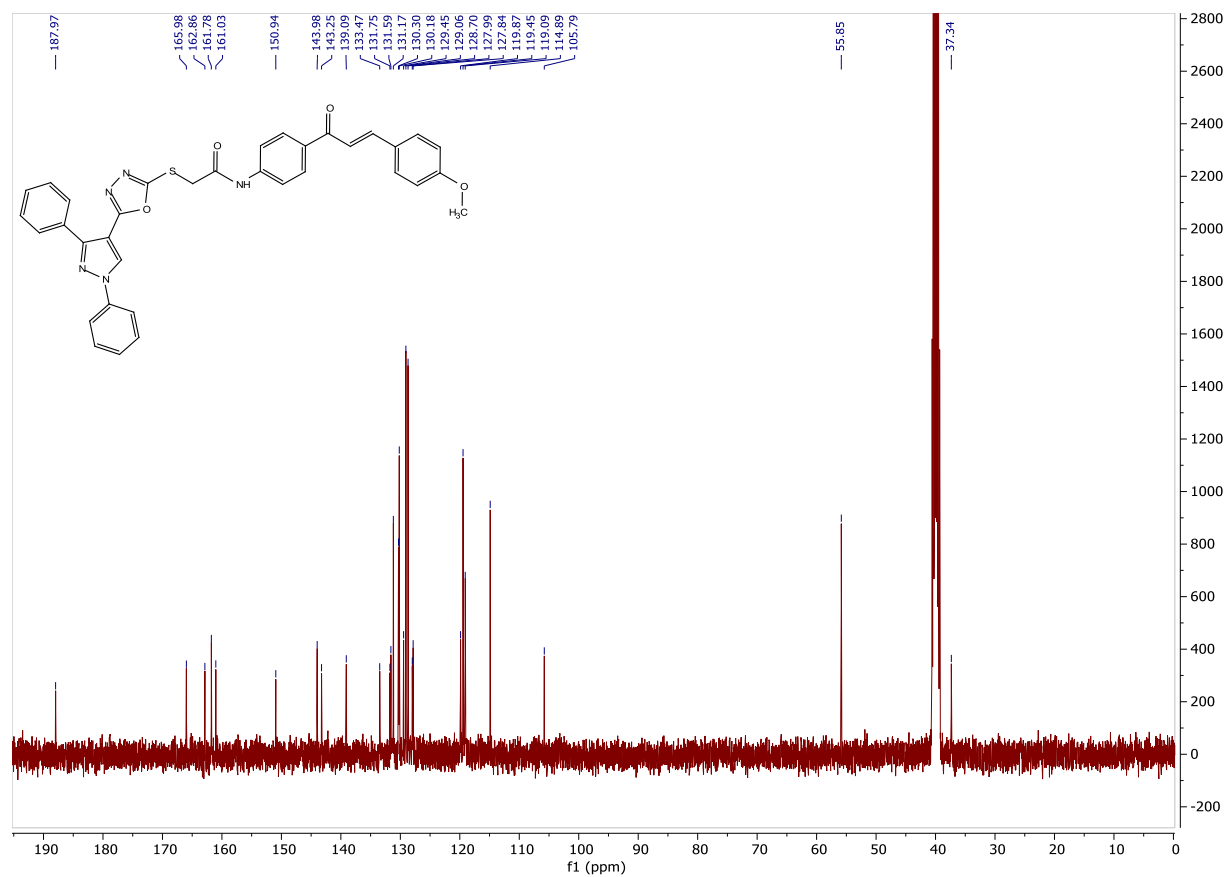
¹H NMR spectrum of compound **12a**



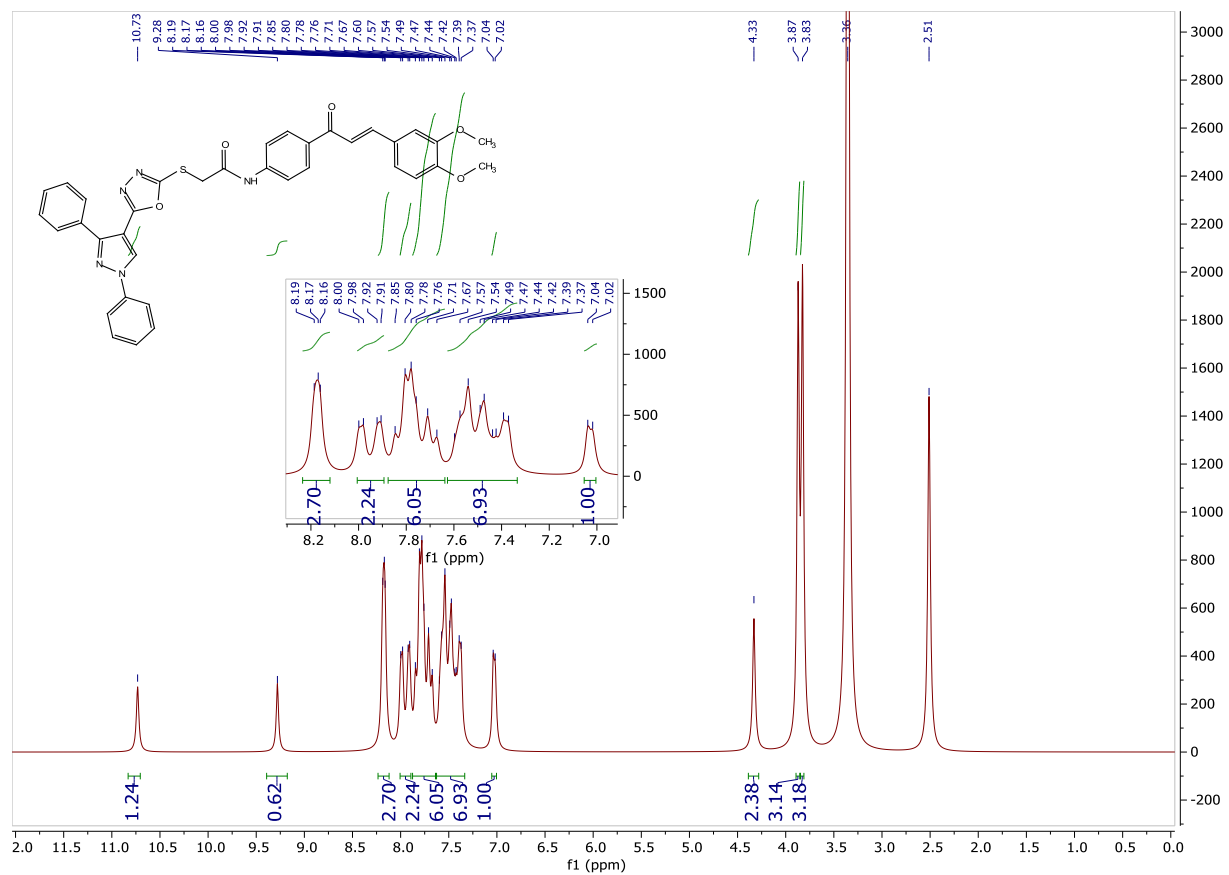
^{13}C NMR spectrum of compound 12a



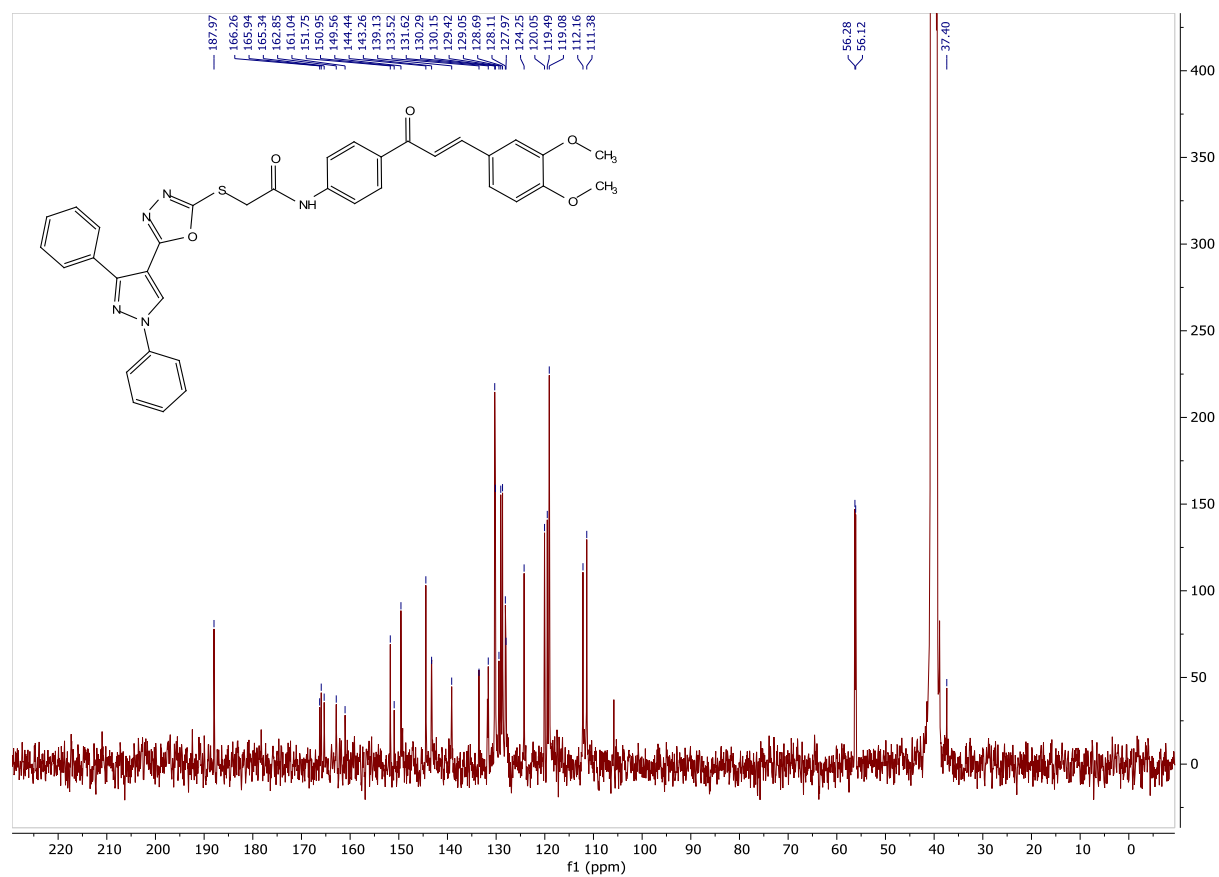
^1H NMR spectrum of compound **12b**



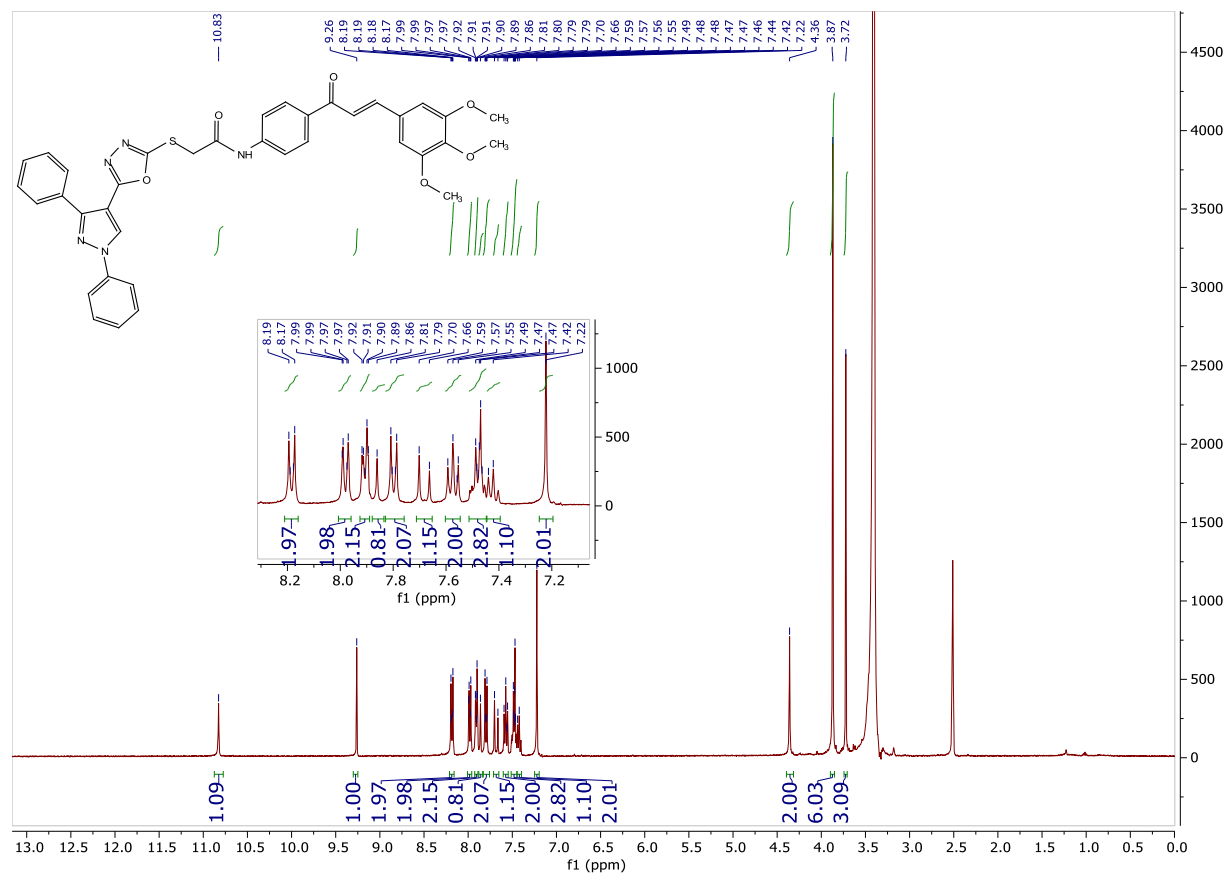
¹³C NMR spectrum of compound **12b**



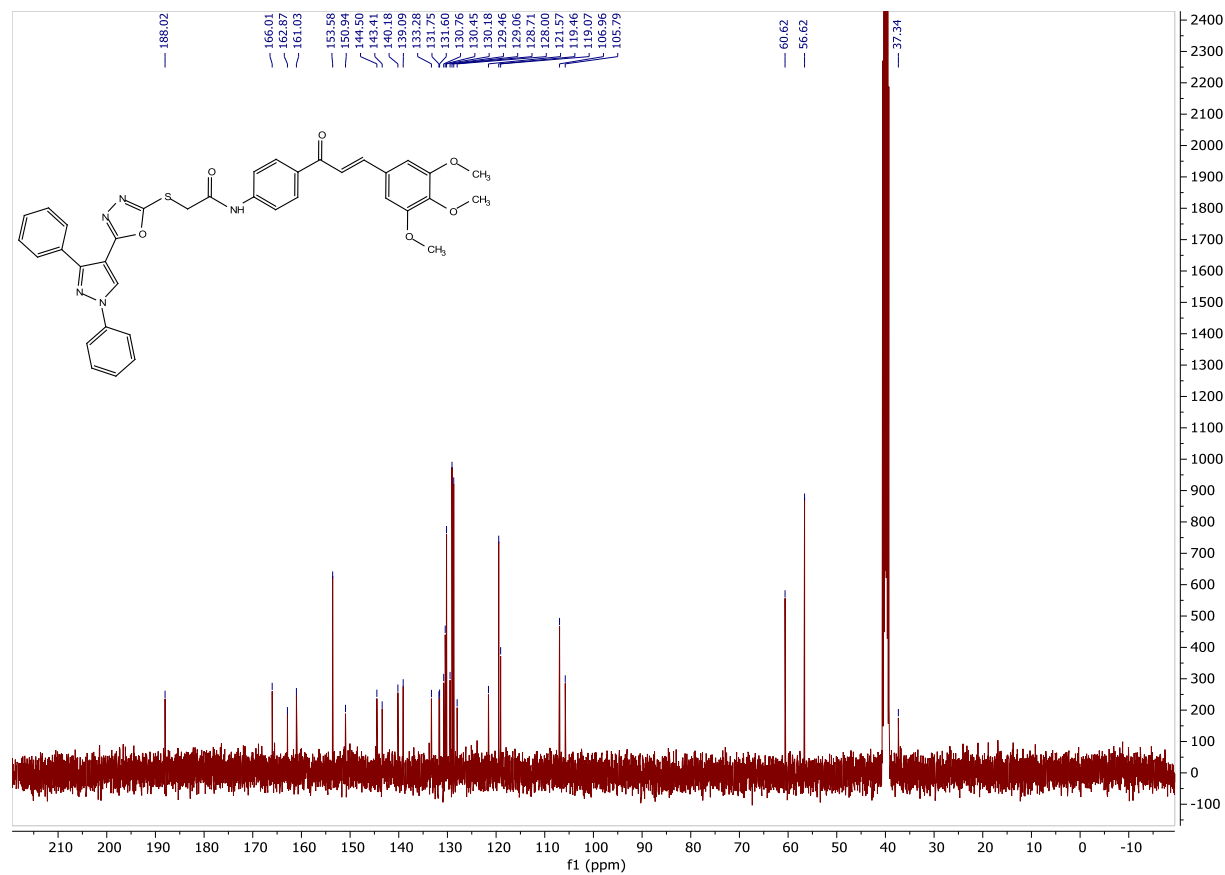
^1H NMR spectrum of compound **12c**



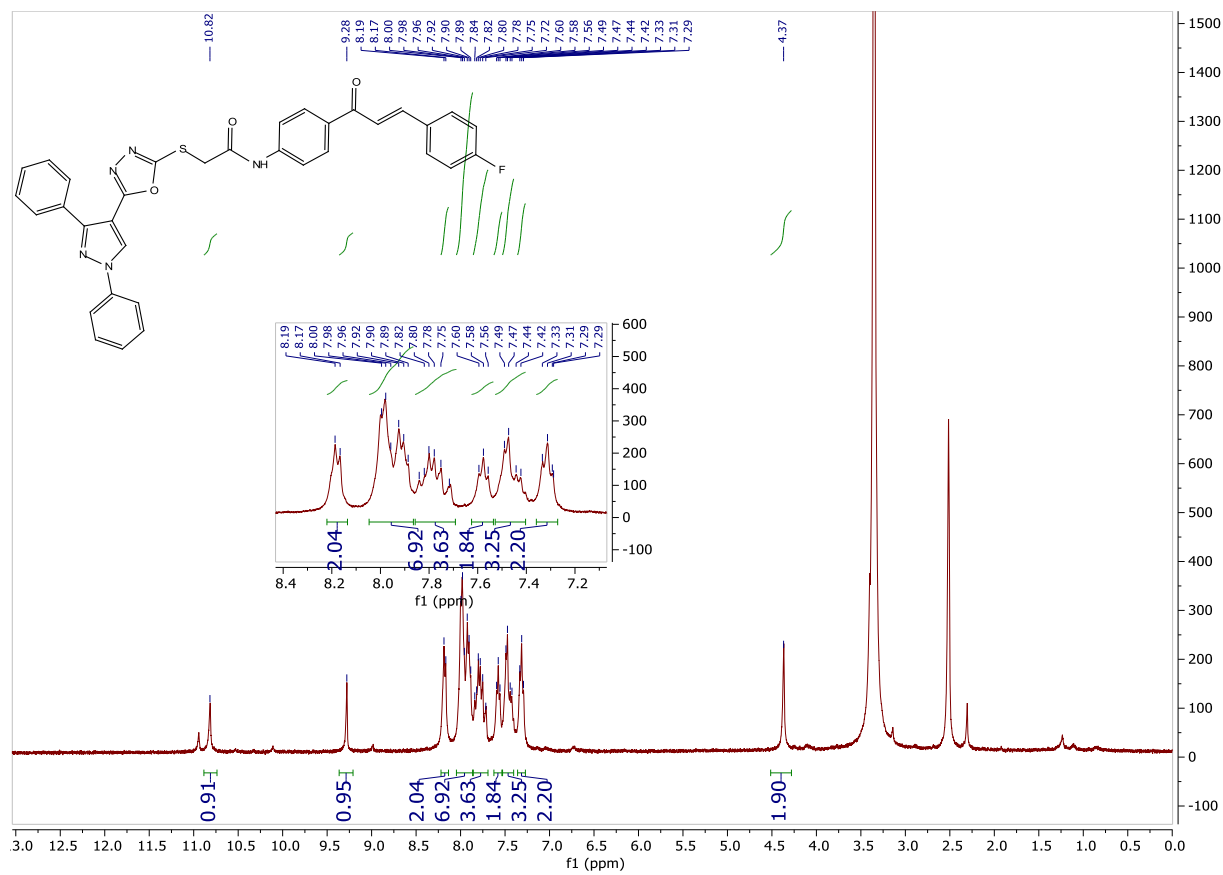
¹³C NMR spectrum of compound 12c



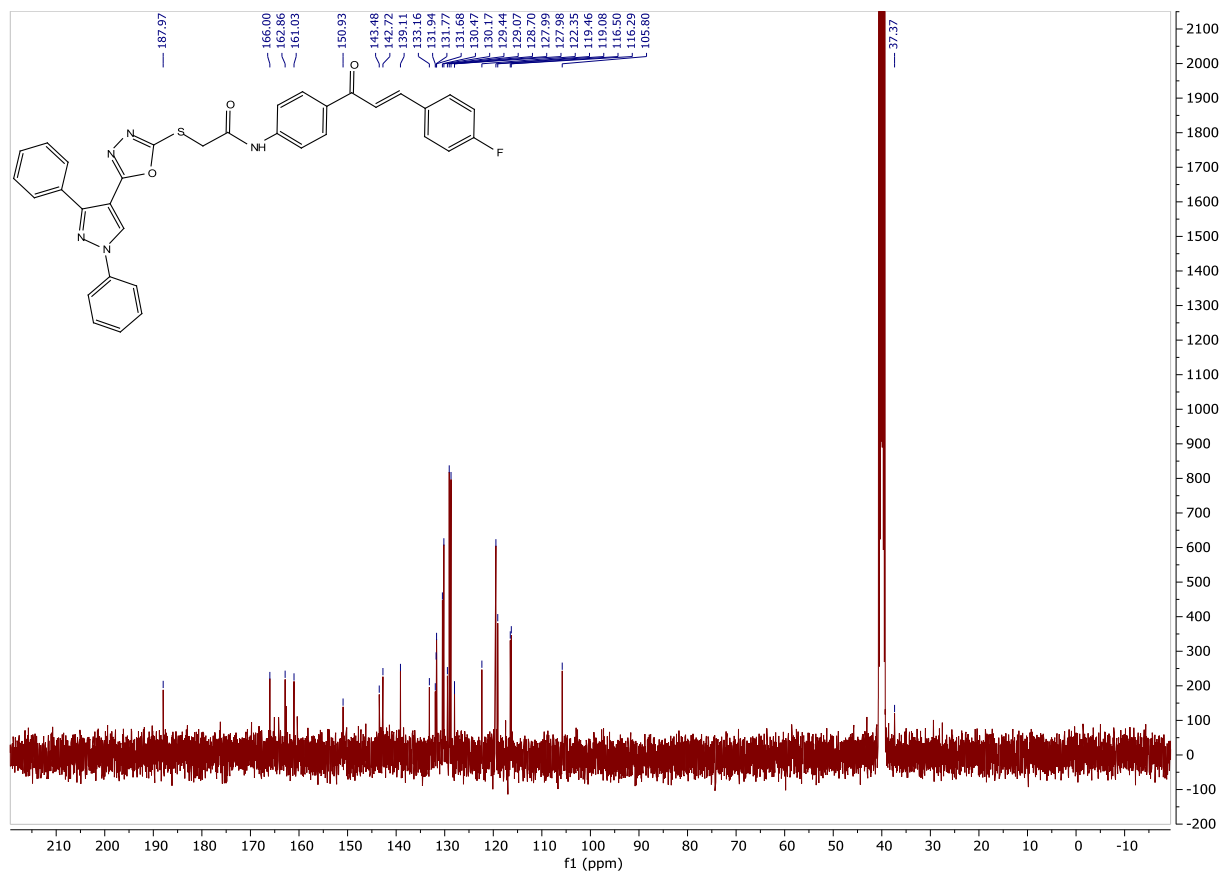
¹H NMR spectrum of compound **12d**



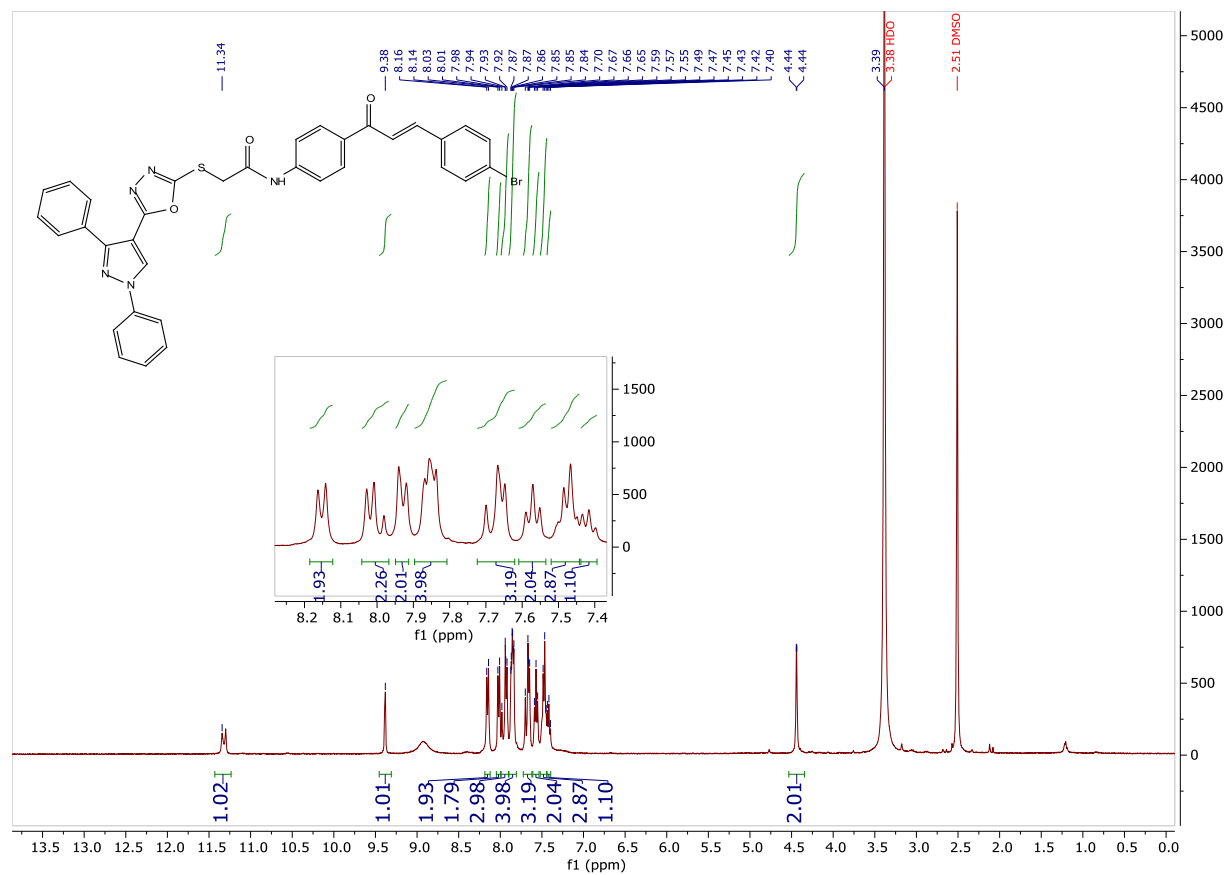
¹³C NMR spectrum of compound **12d**



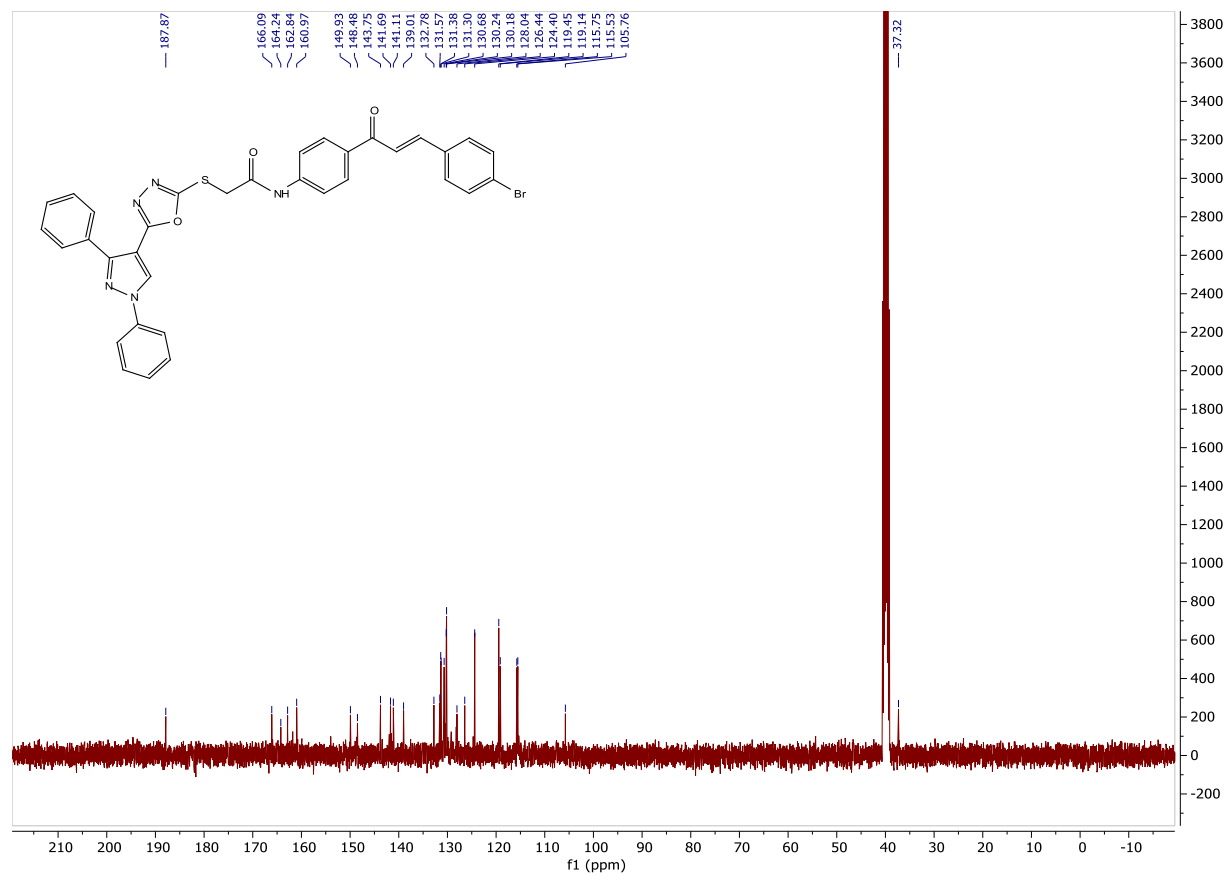
¹H NMR spectrum of compound **12e**



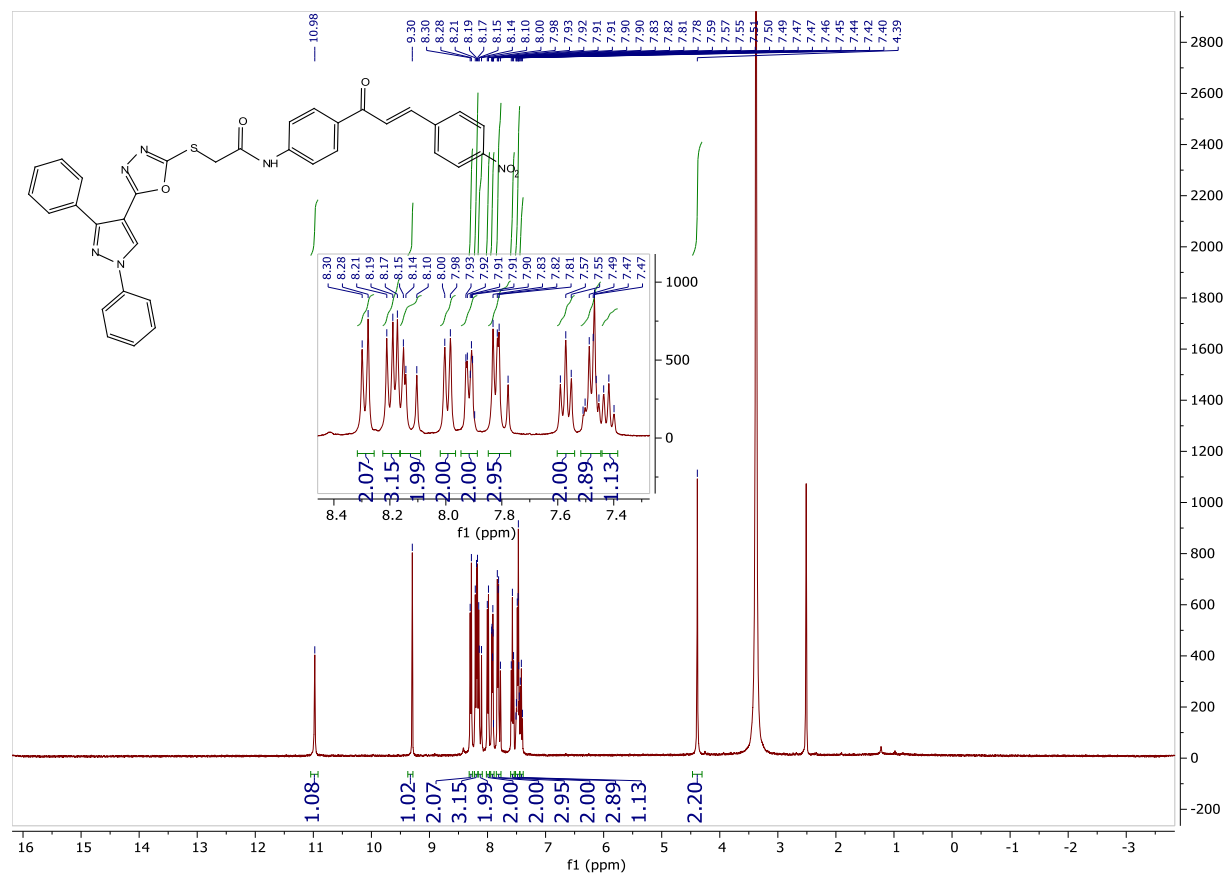
^{13}C NMR spectrum of compound **12e**



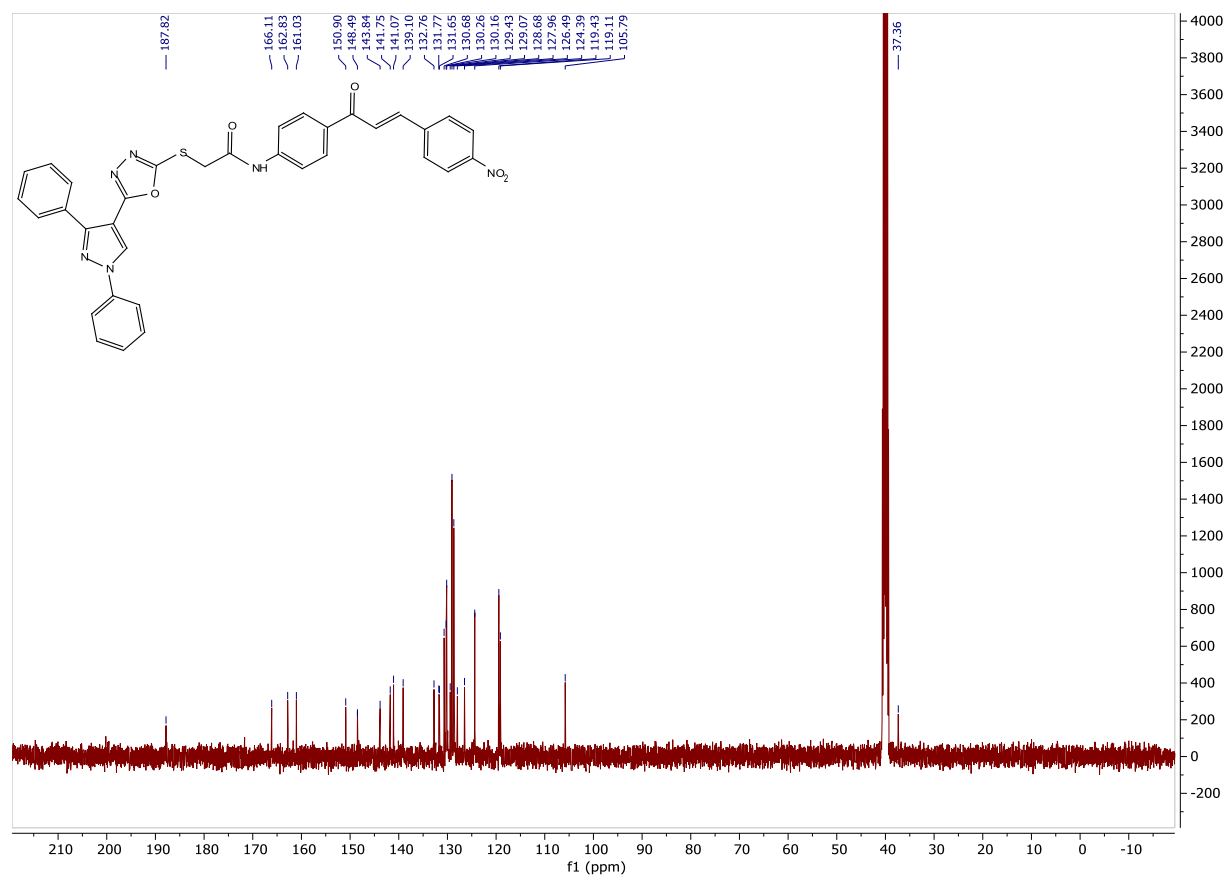
¹H NMR spectrum of compound **12f**



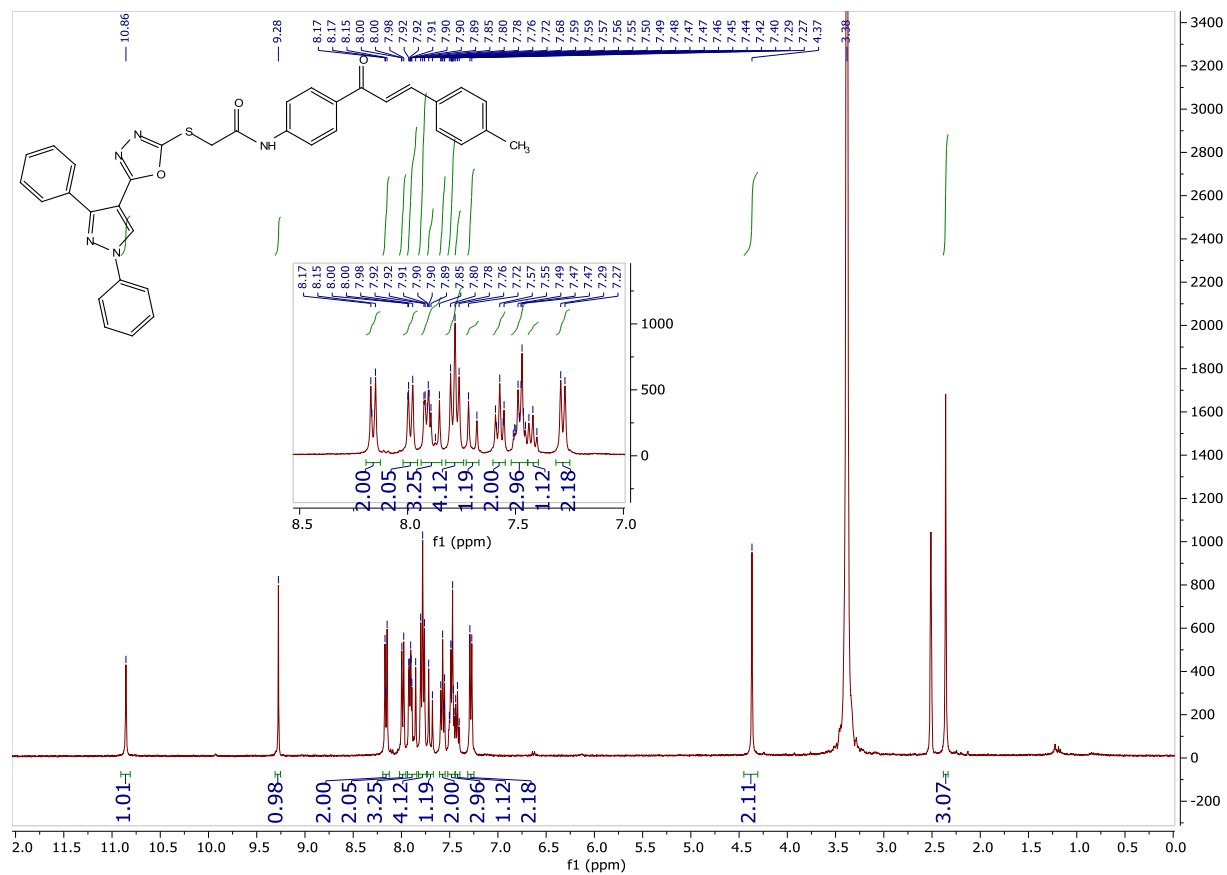
¹³C NMR spectrum of compound 12f



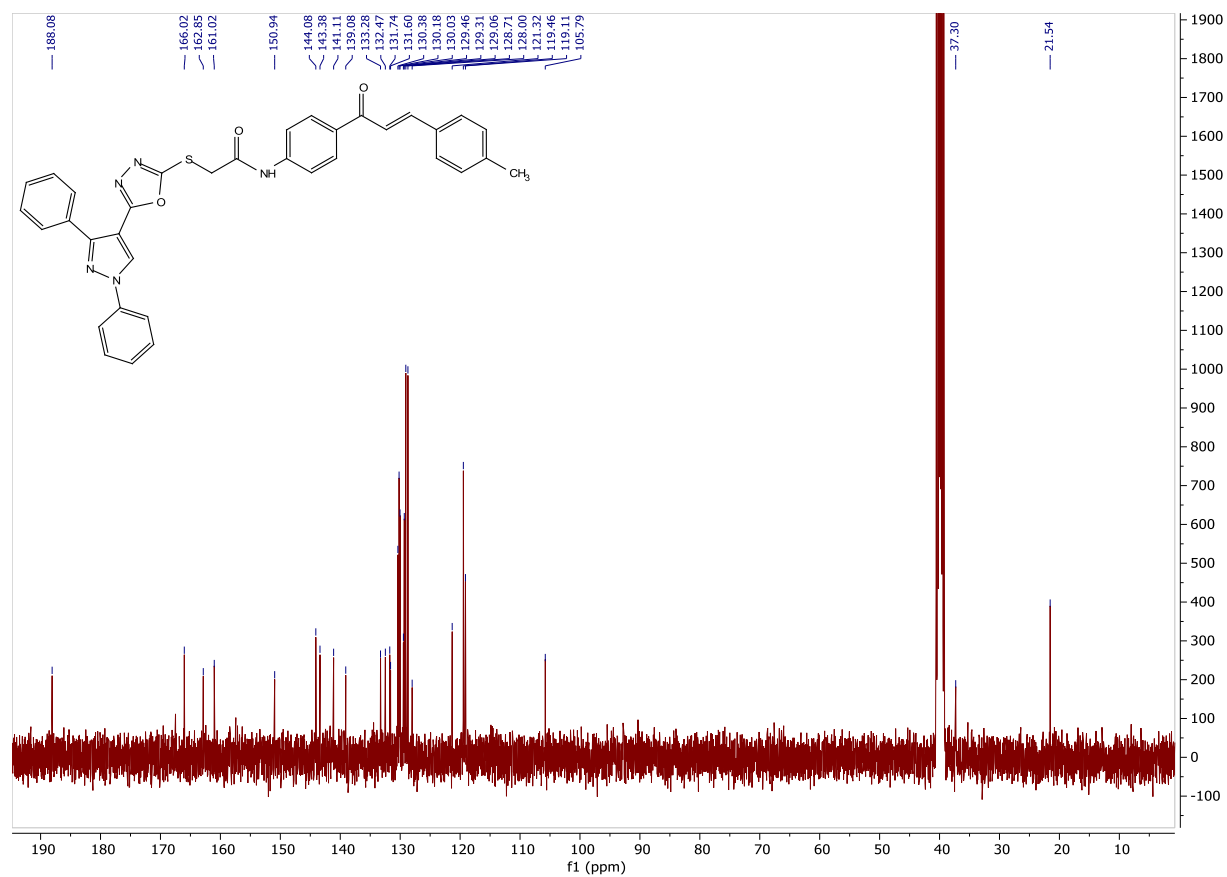
¹H NMR spectrum of compound **12g**



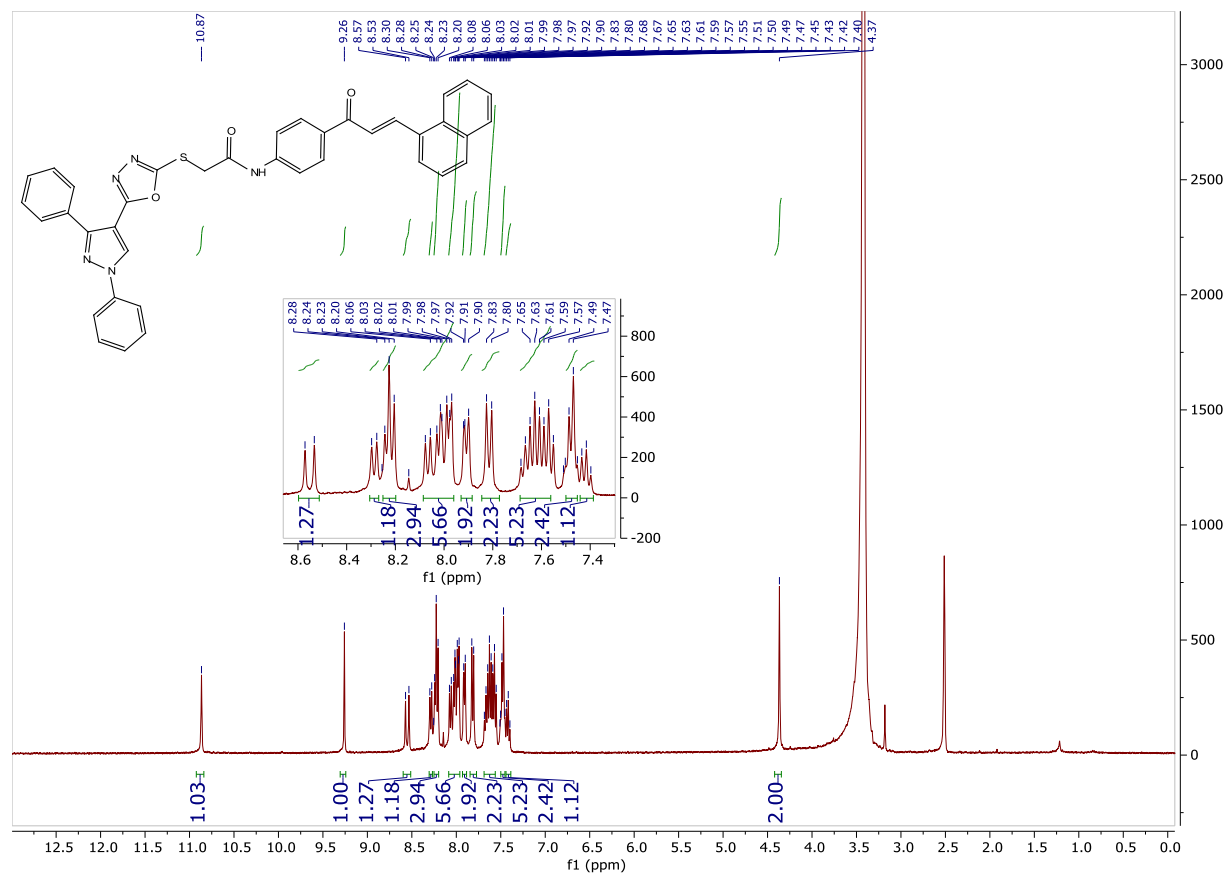
¹³C NMR spectrum of compound 12g



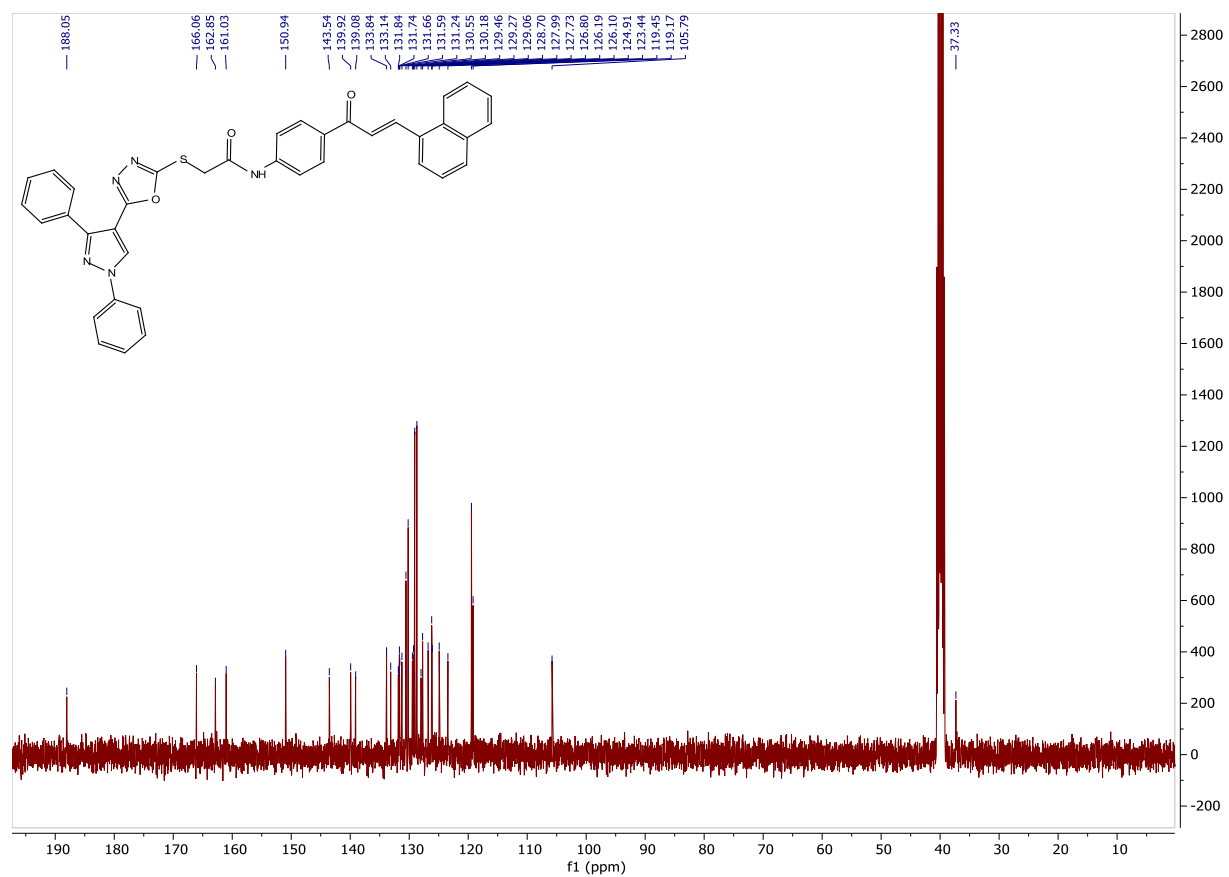
^1H NMR spectrum of compound **12h**



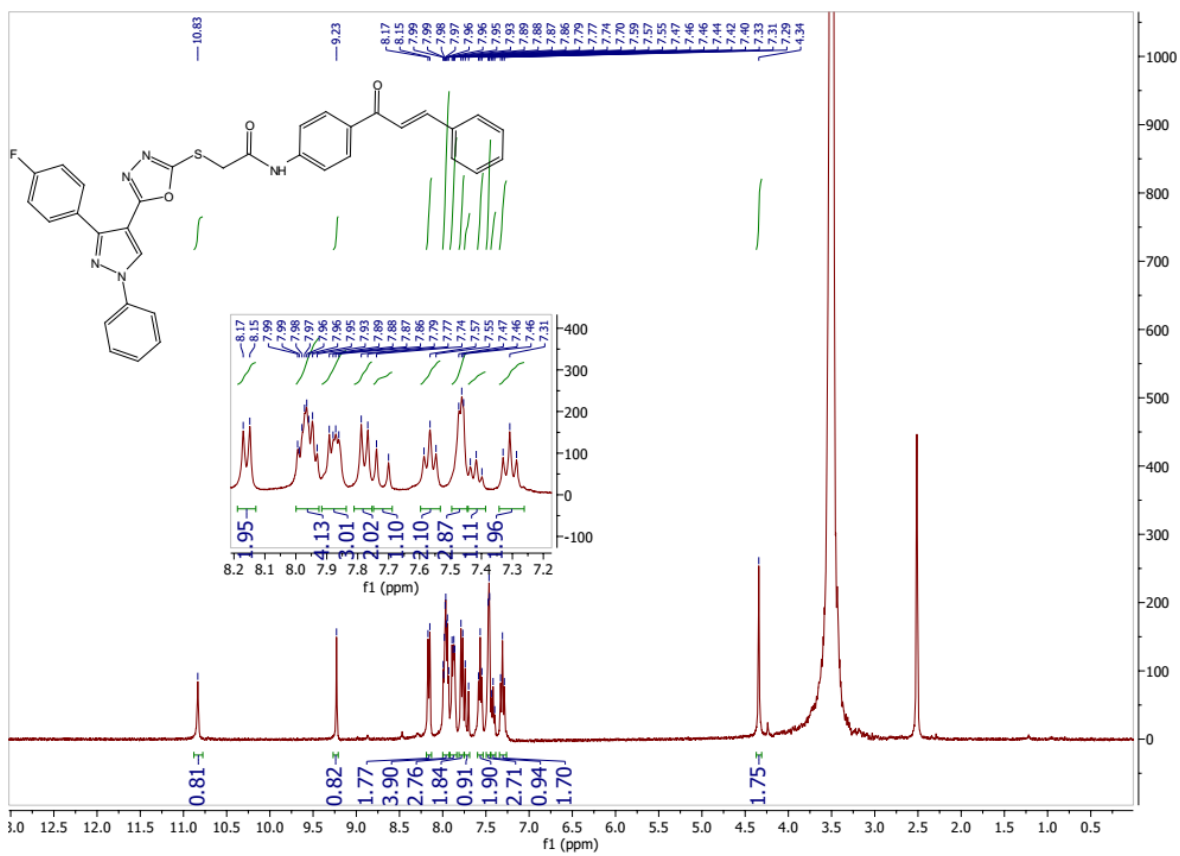
^{13}C NMR spectrum of compound **12h**



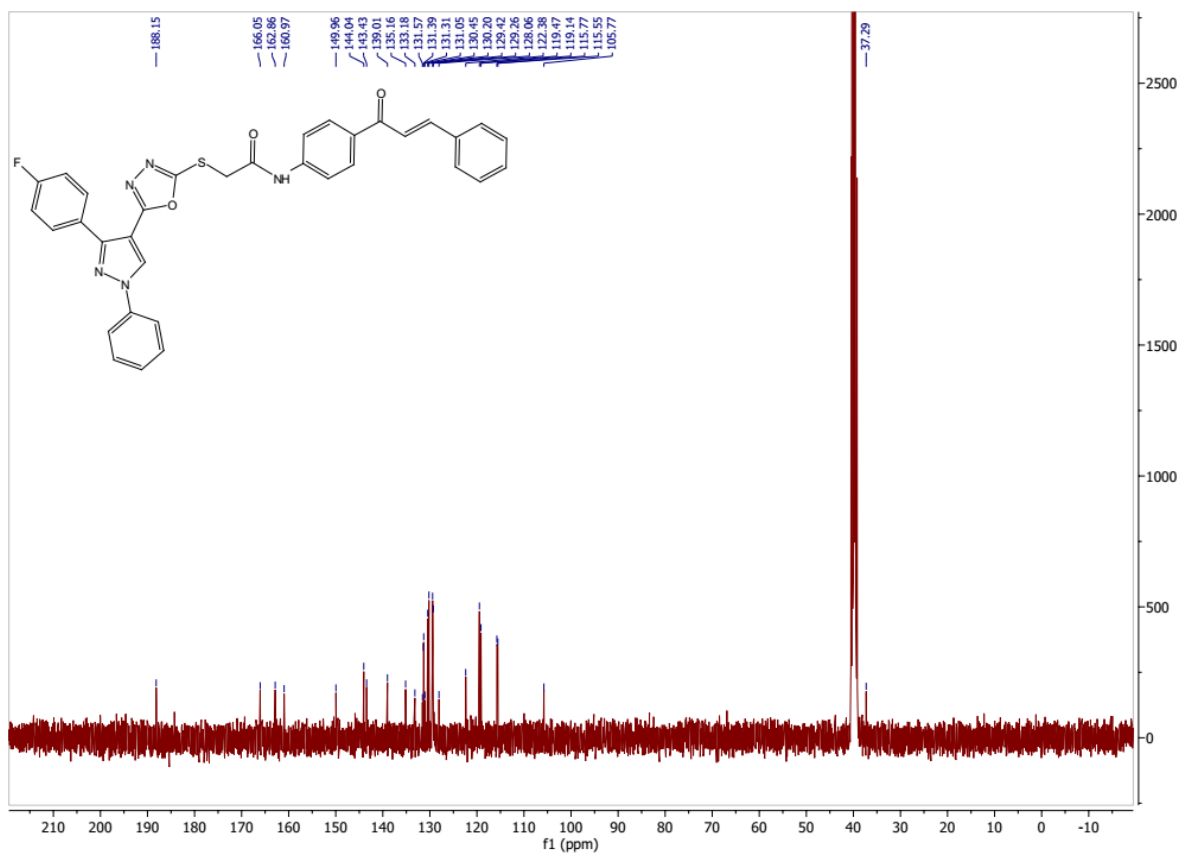
¹H NMR spectrum of compound **12i**



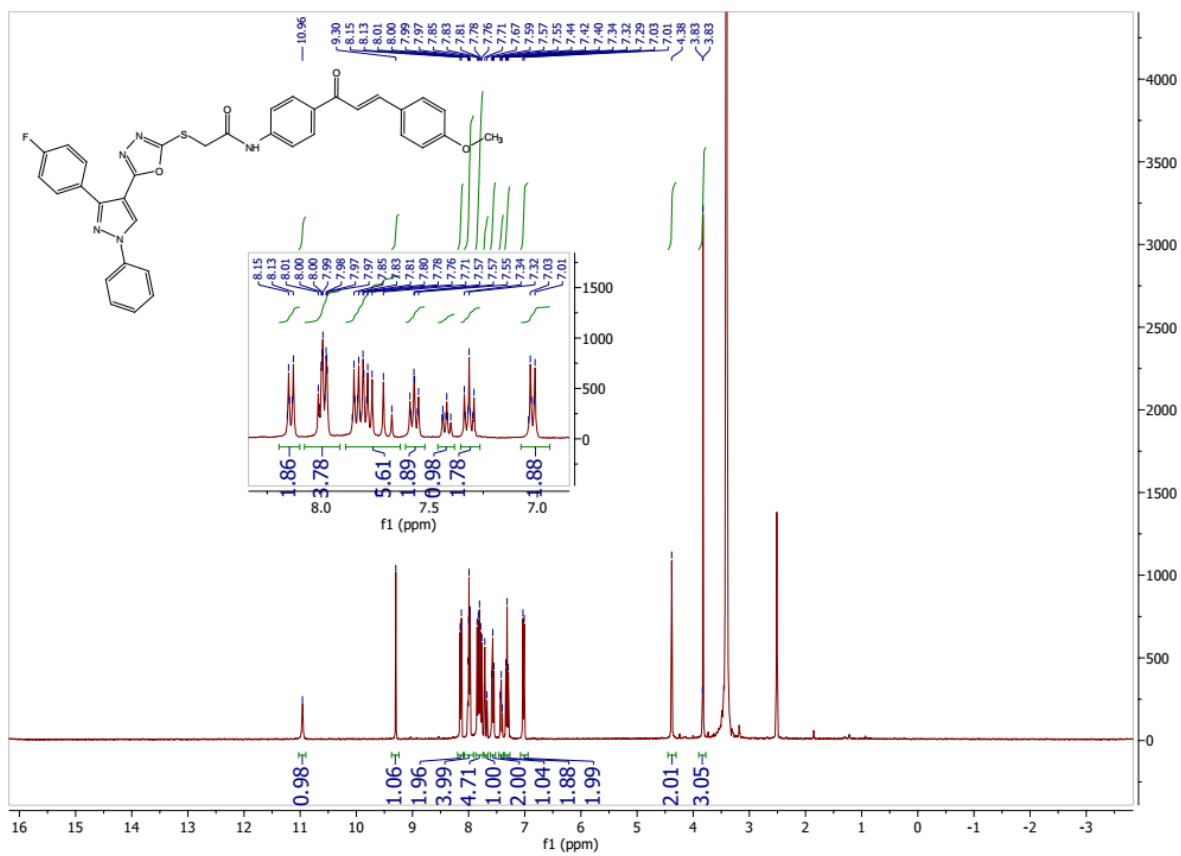
¹³C NMR spectrum of compound 12i



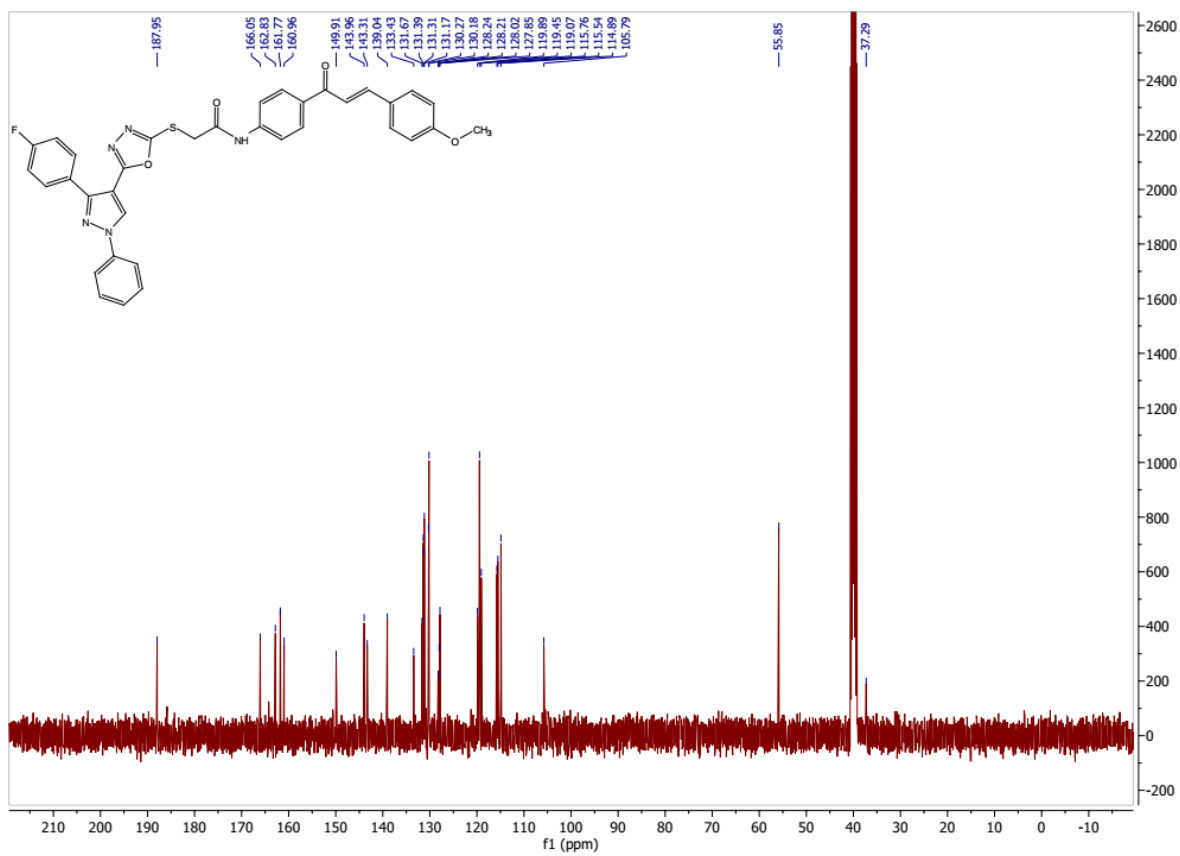
¹H NMR spectrum of compound **13a**



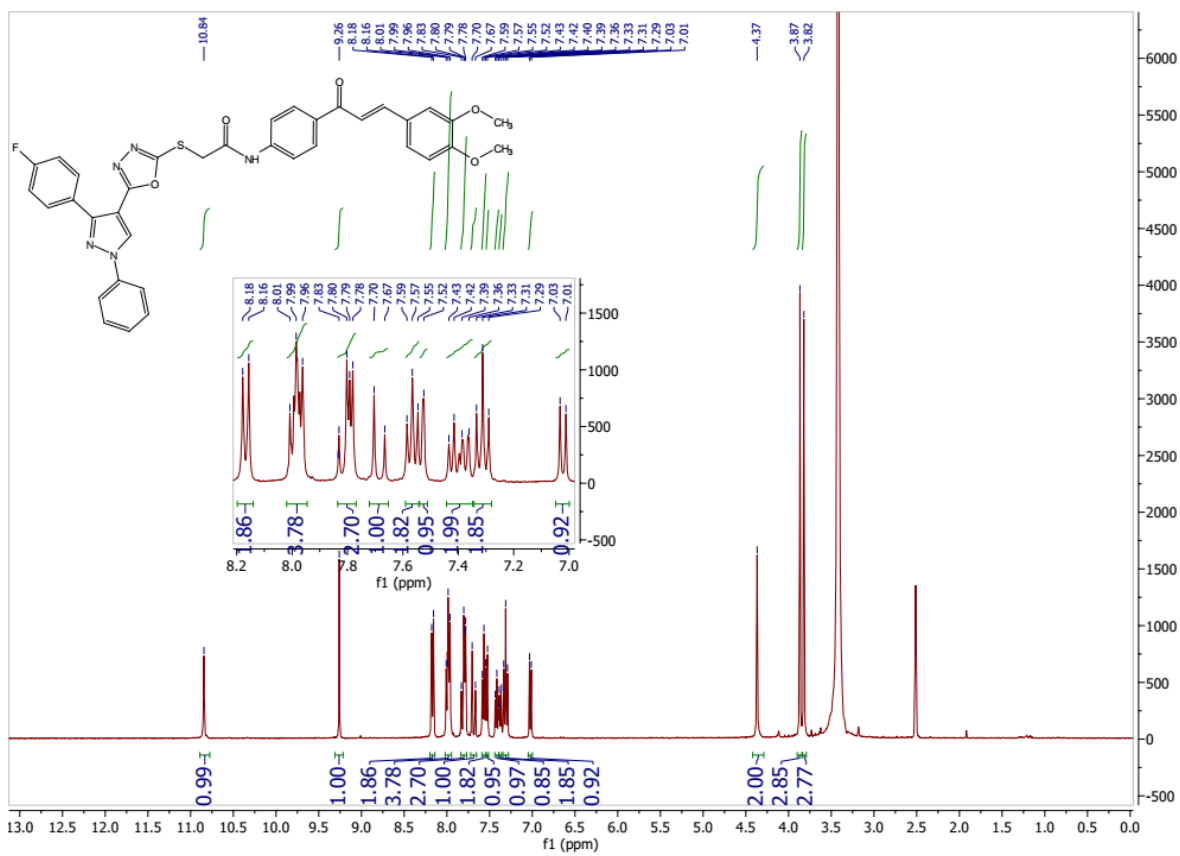
¹³C NMR spectrum of compound 13a



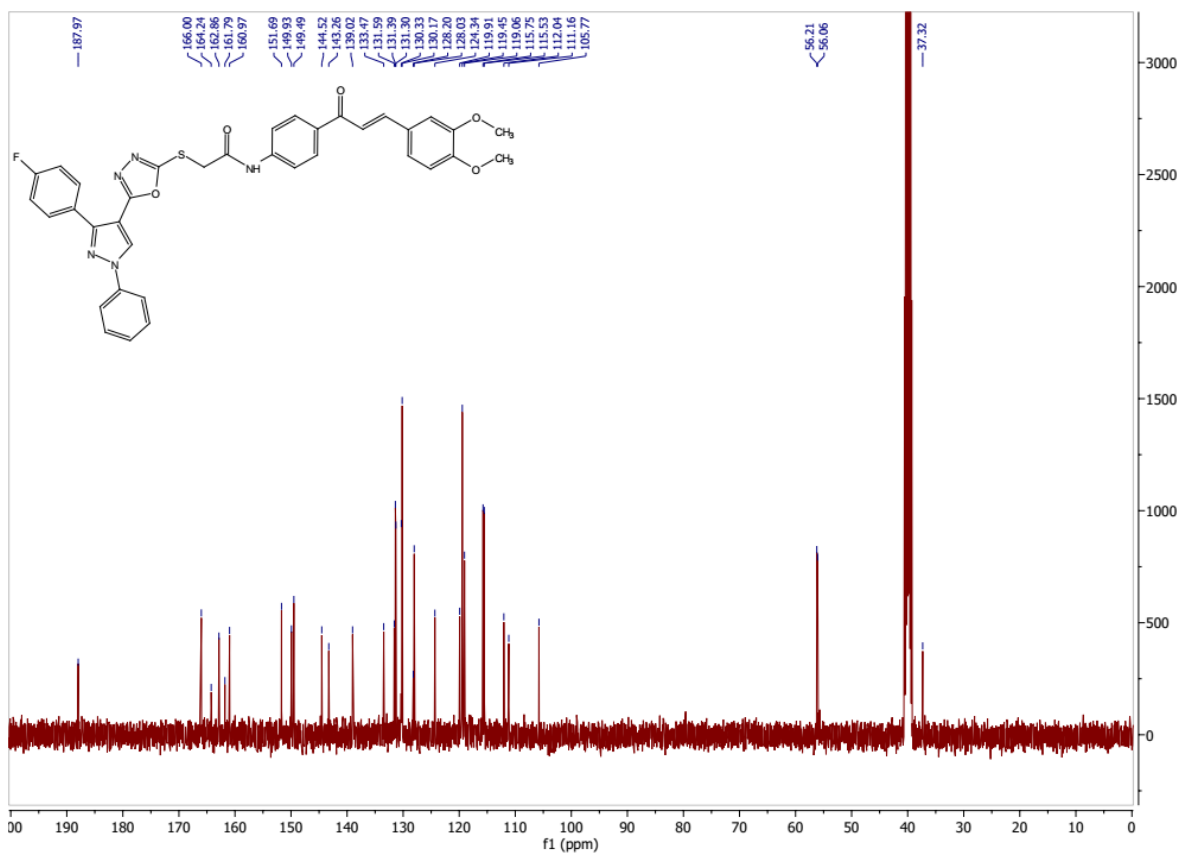
^1H NMR spectrum of compound **13b**



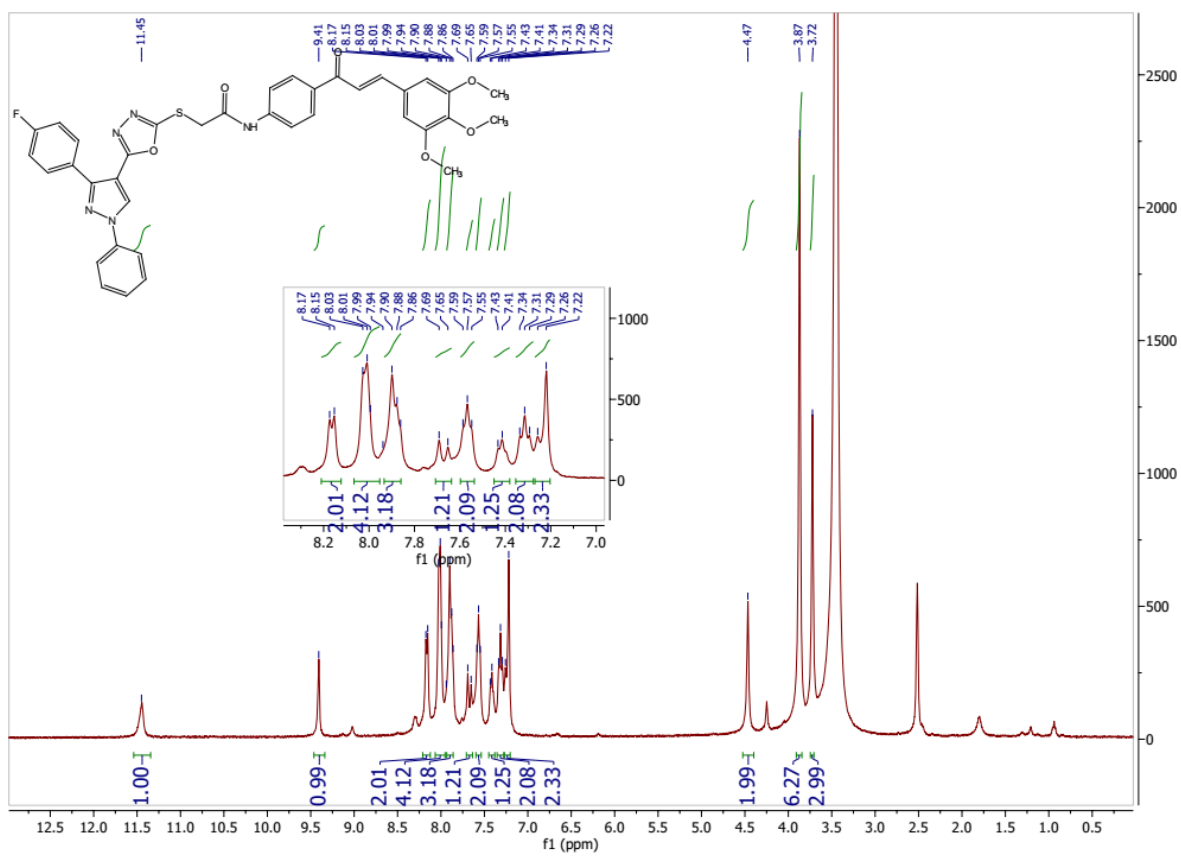
¹³C NMR spectrum of compound **13b**



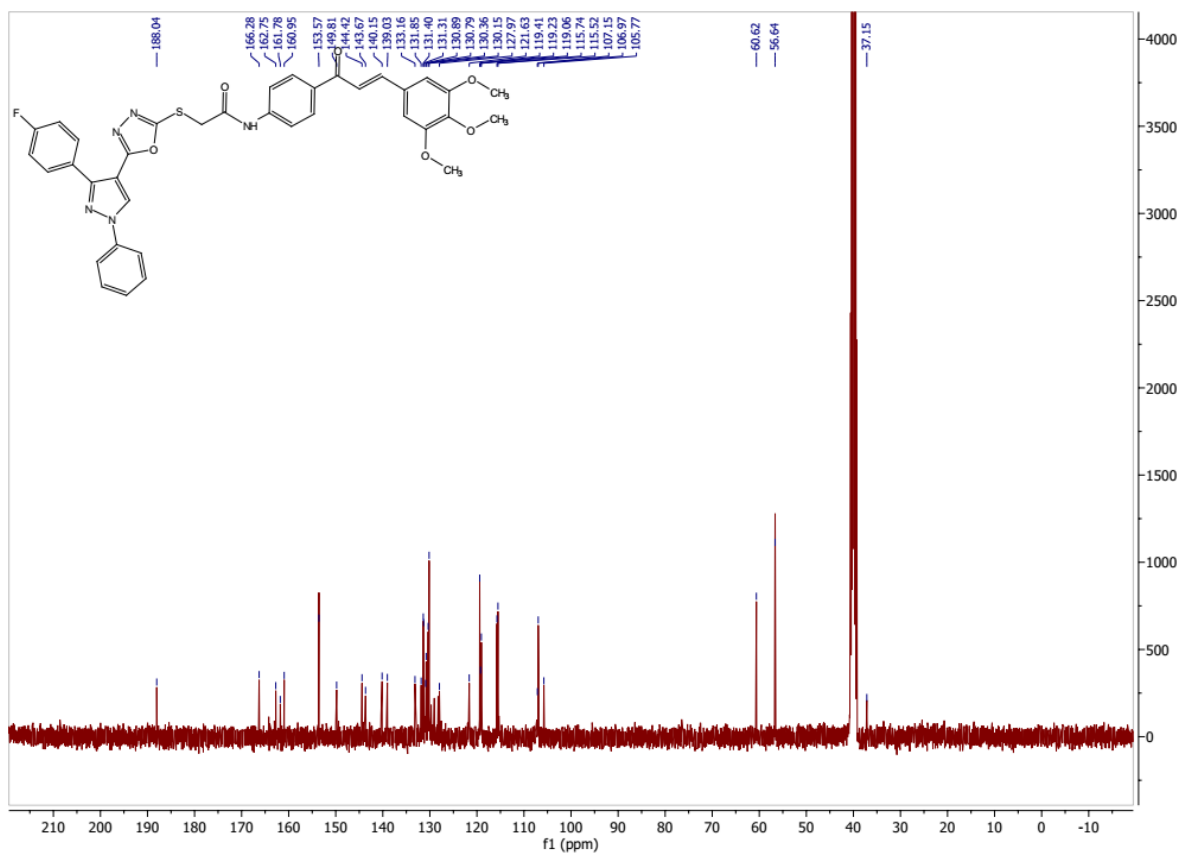
^1H NMR spectrum of compound **13c**



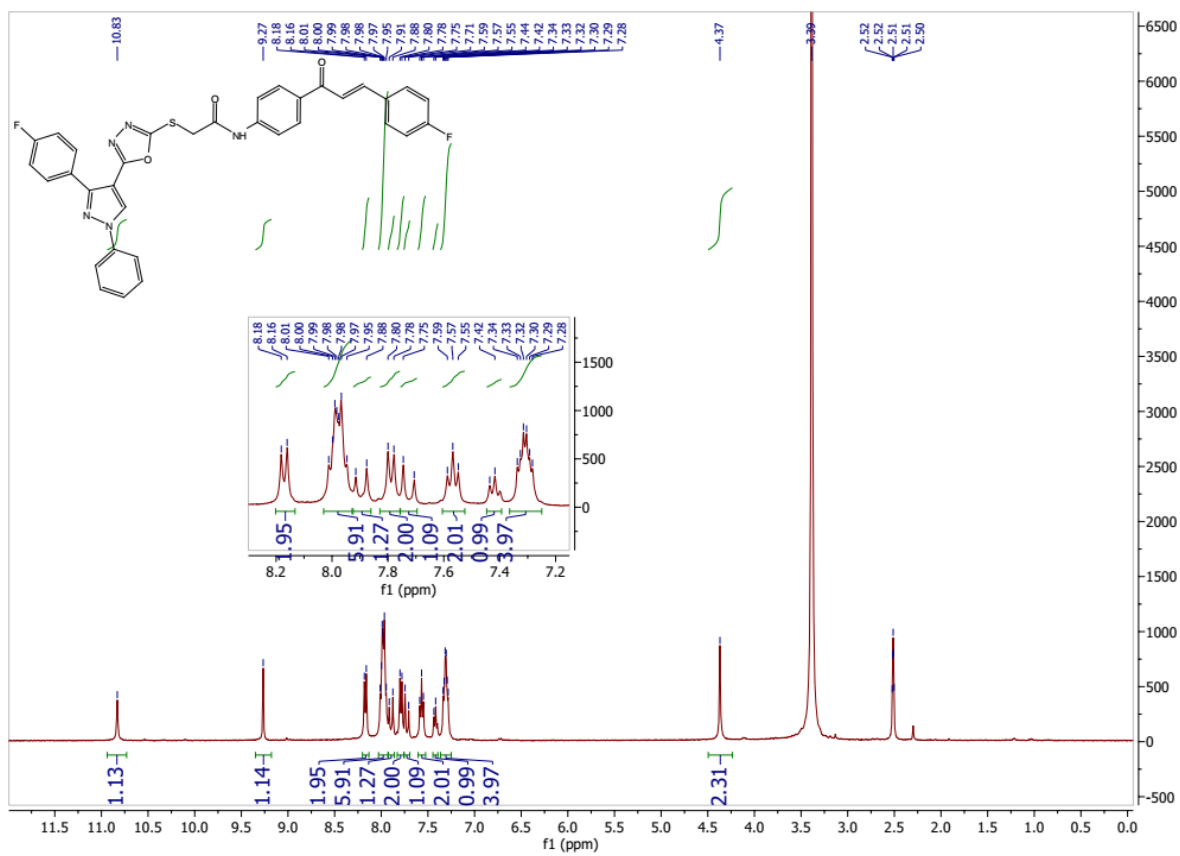
^{13}C NMR spectrum of compound **13c**



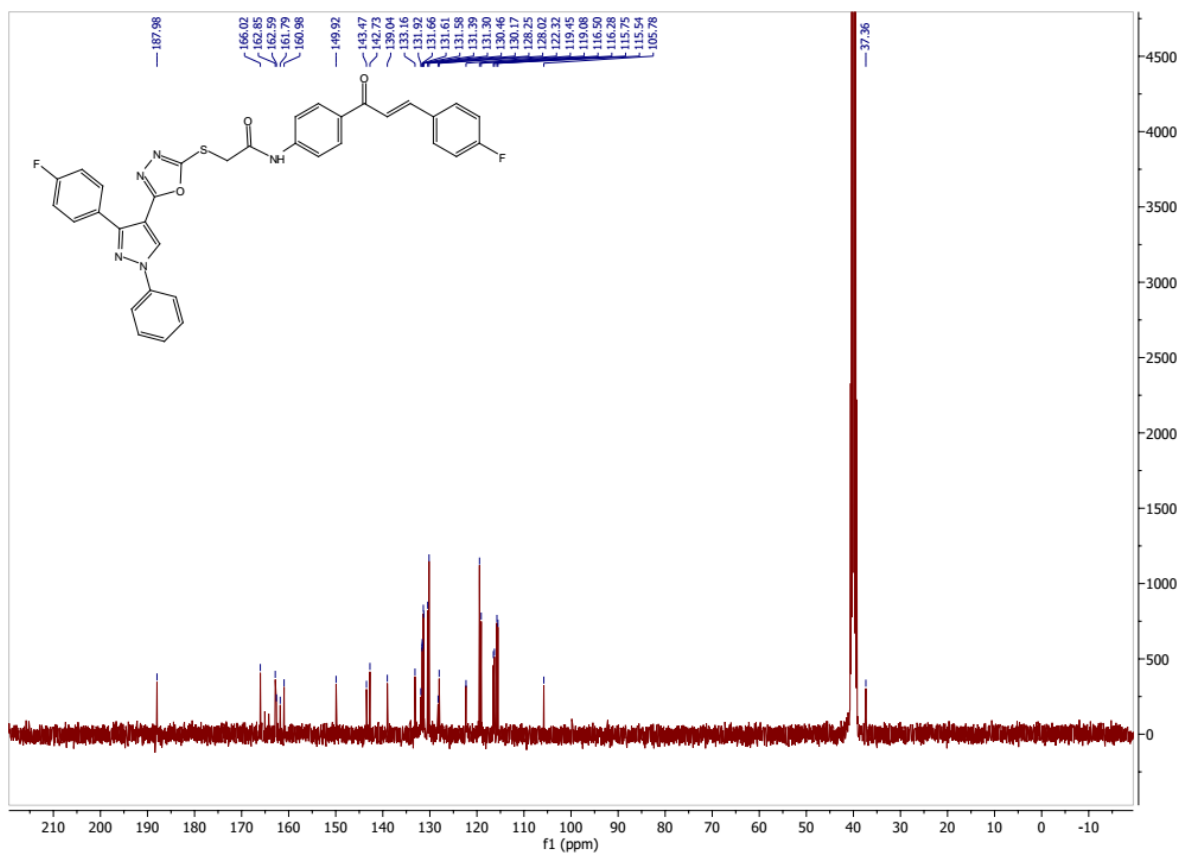
^1H NMR spectrum of compound **13d**



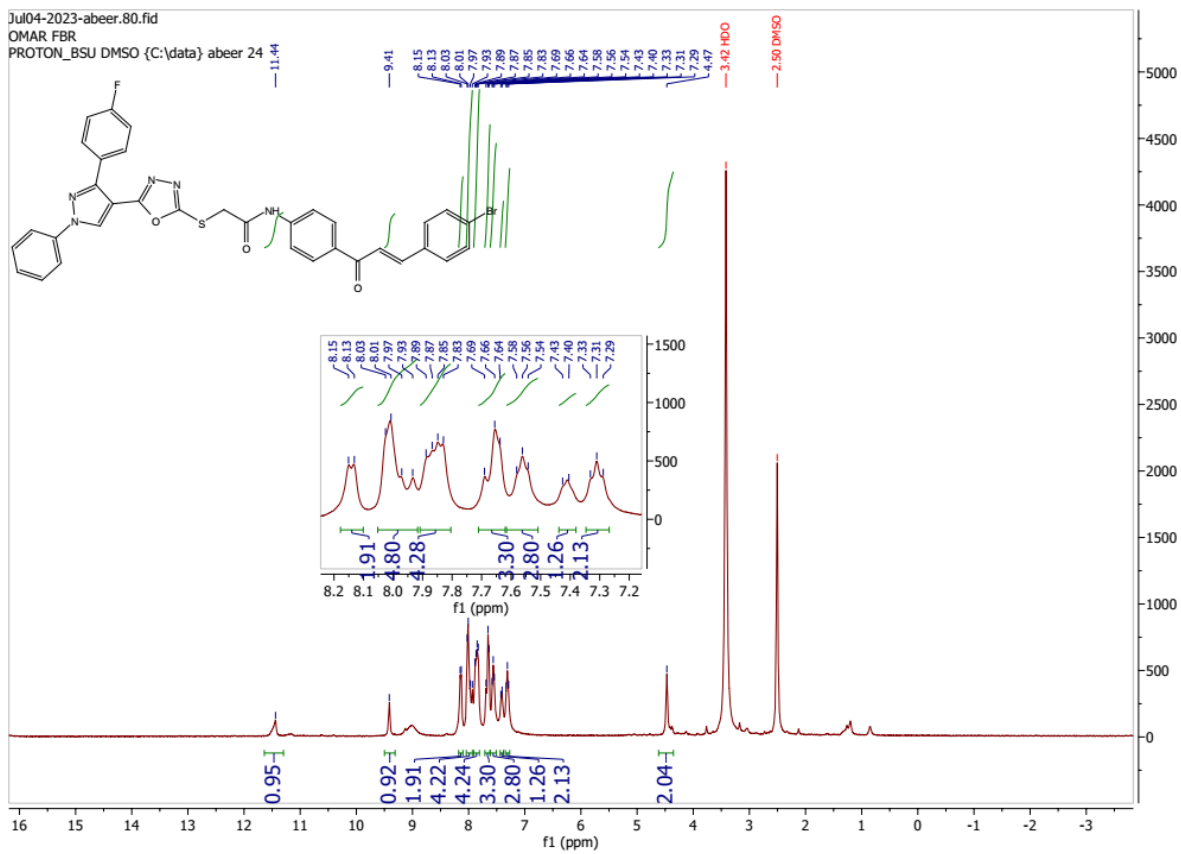
^{13}C NMR spectrum of compound **13d**



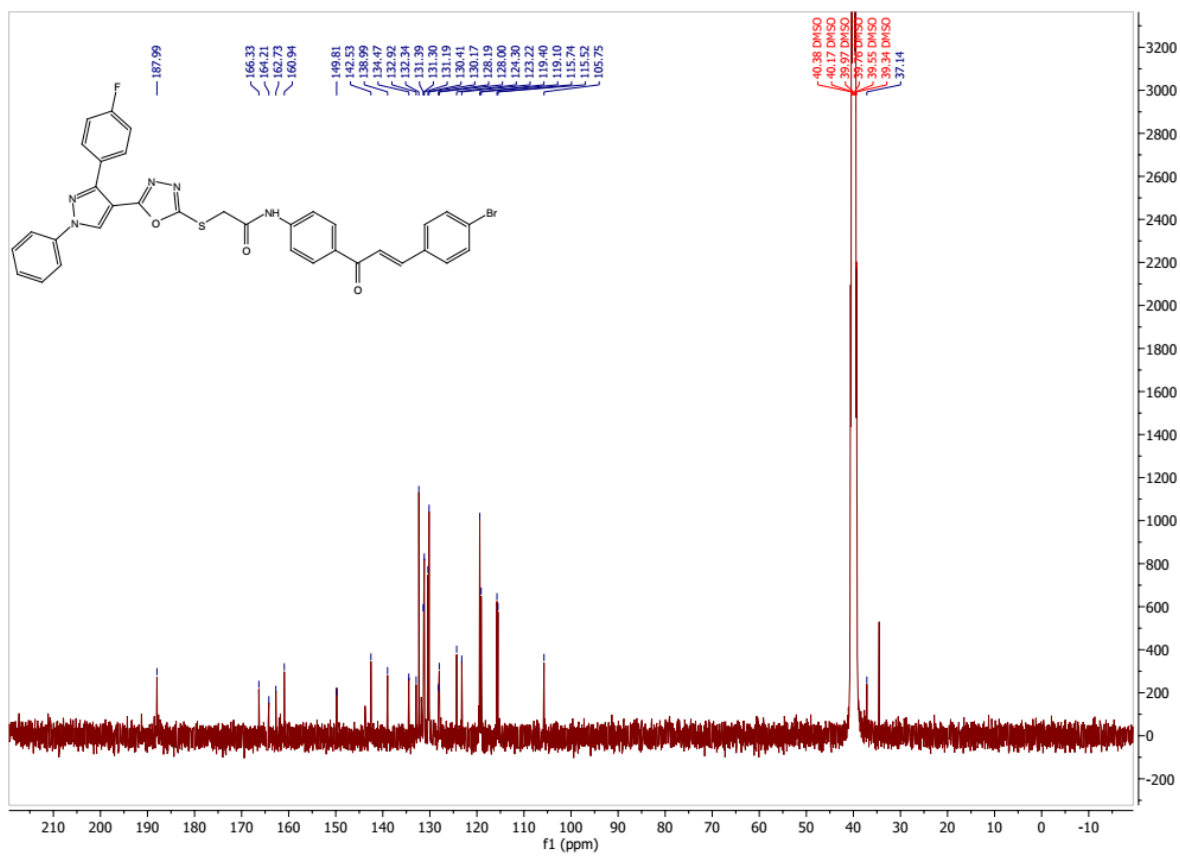
^1H NMR spectrum of compound **13e**



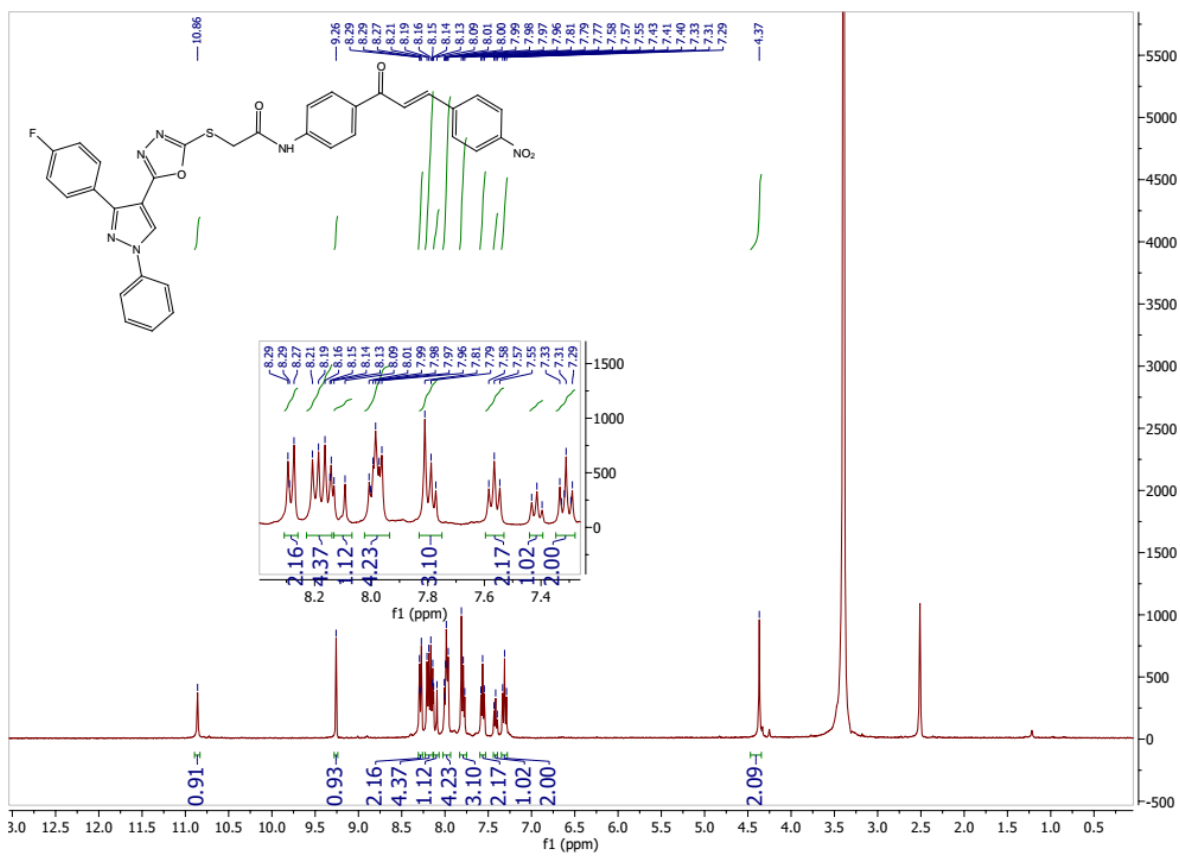
^{13}C NMR spectrum of compound **13e**



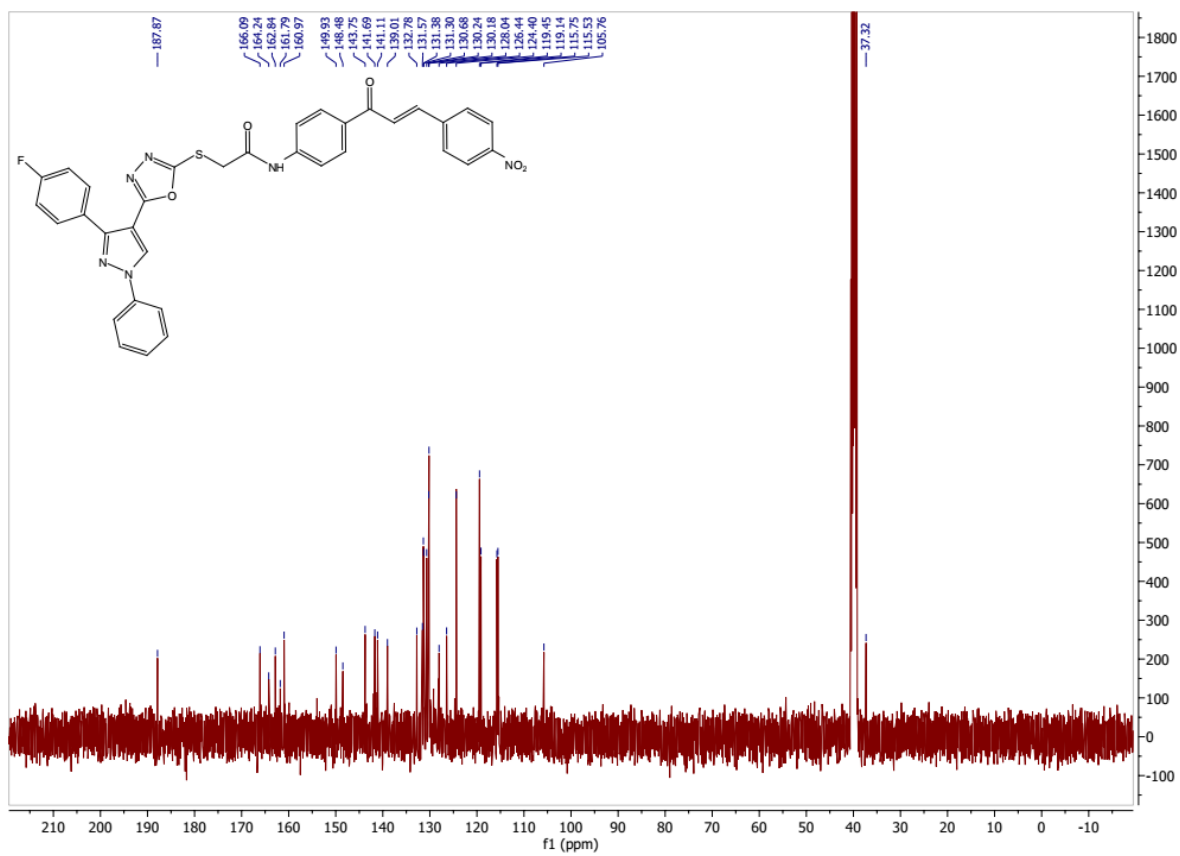
^1H NMR spectrum of compound **13f**



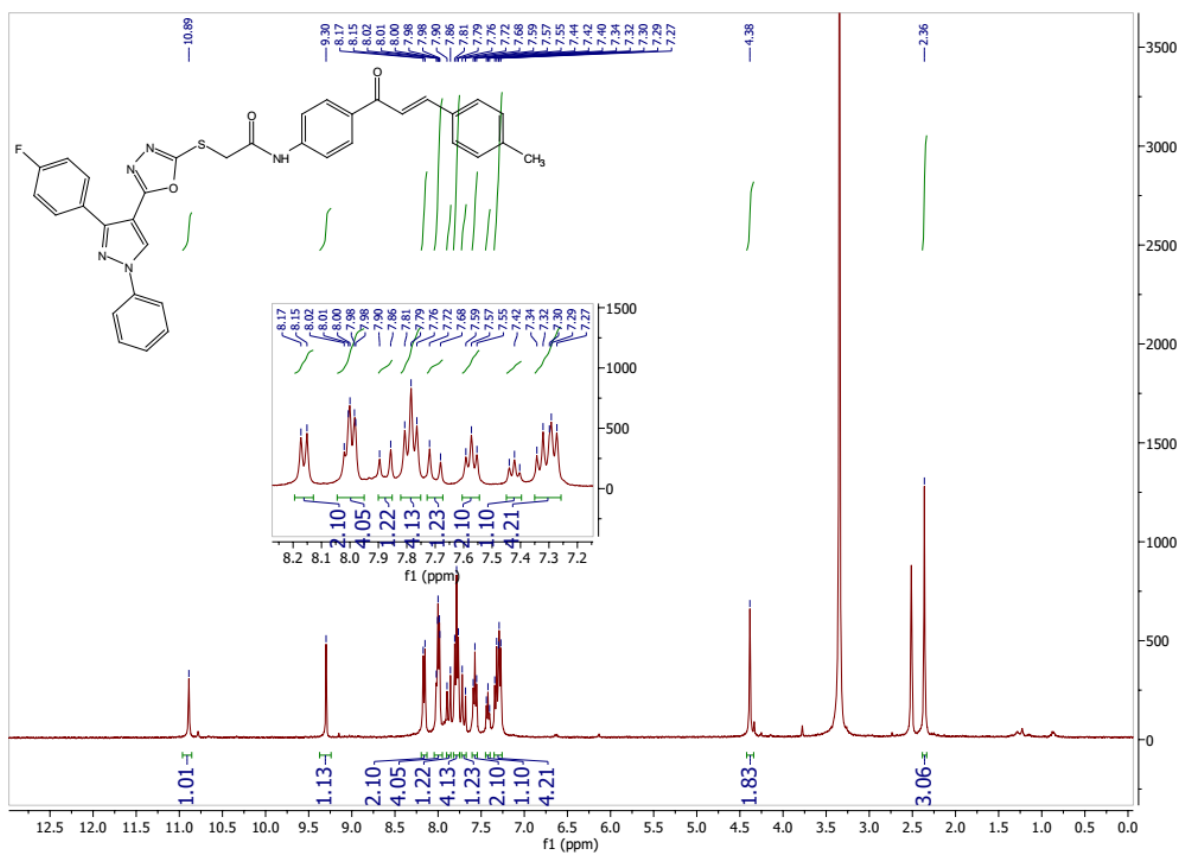
^{13}C NMR spectrum of compound **13f**



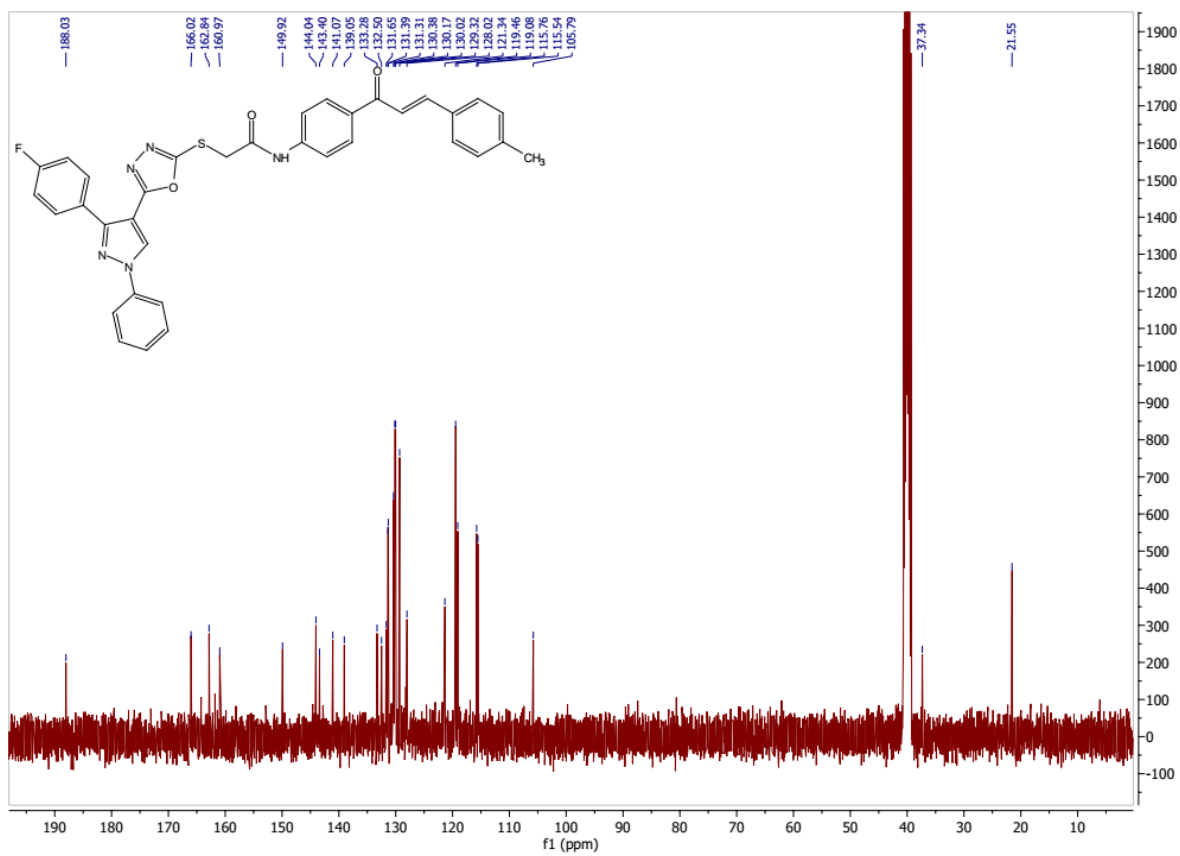
^1H NMR spectrum of compound **13g**



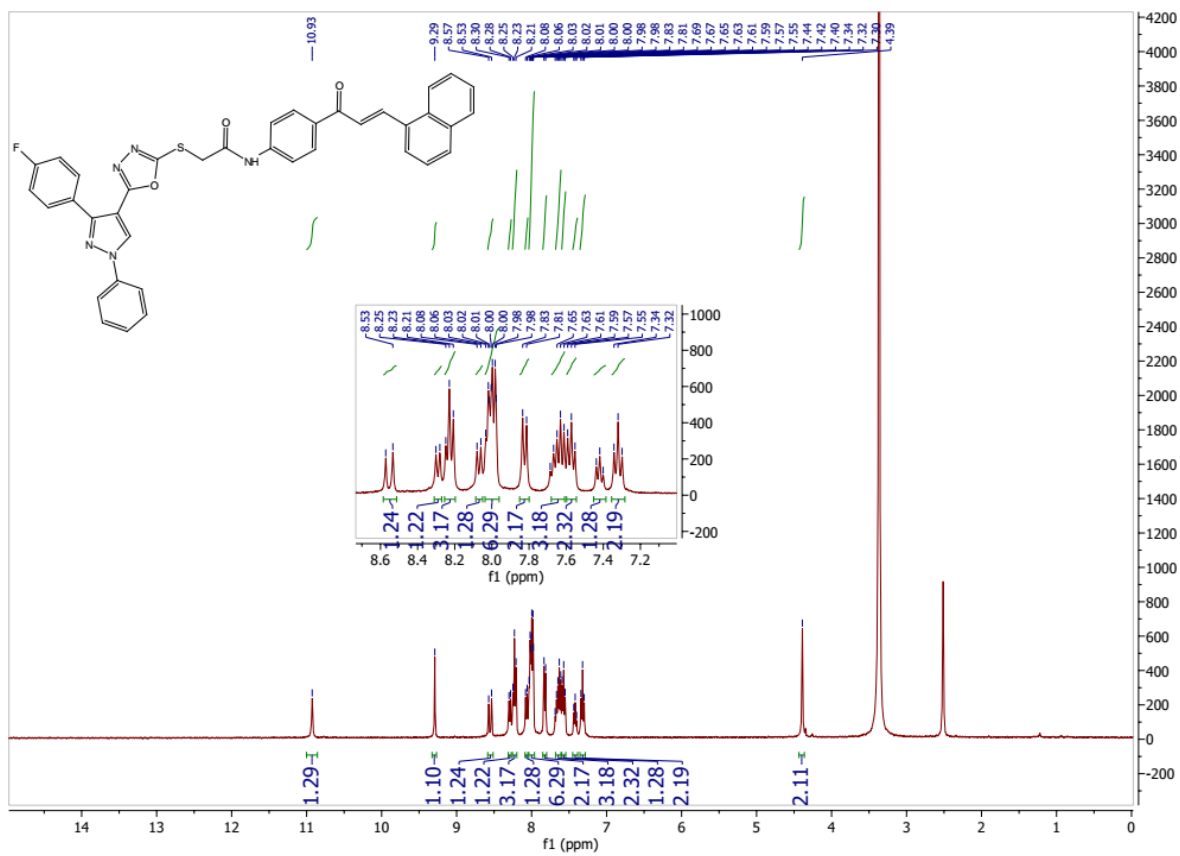
¹³C NMR spectrum of compound **13g**



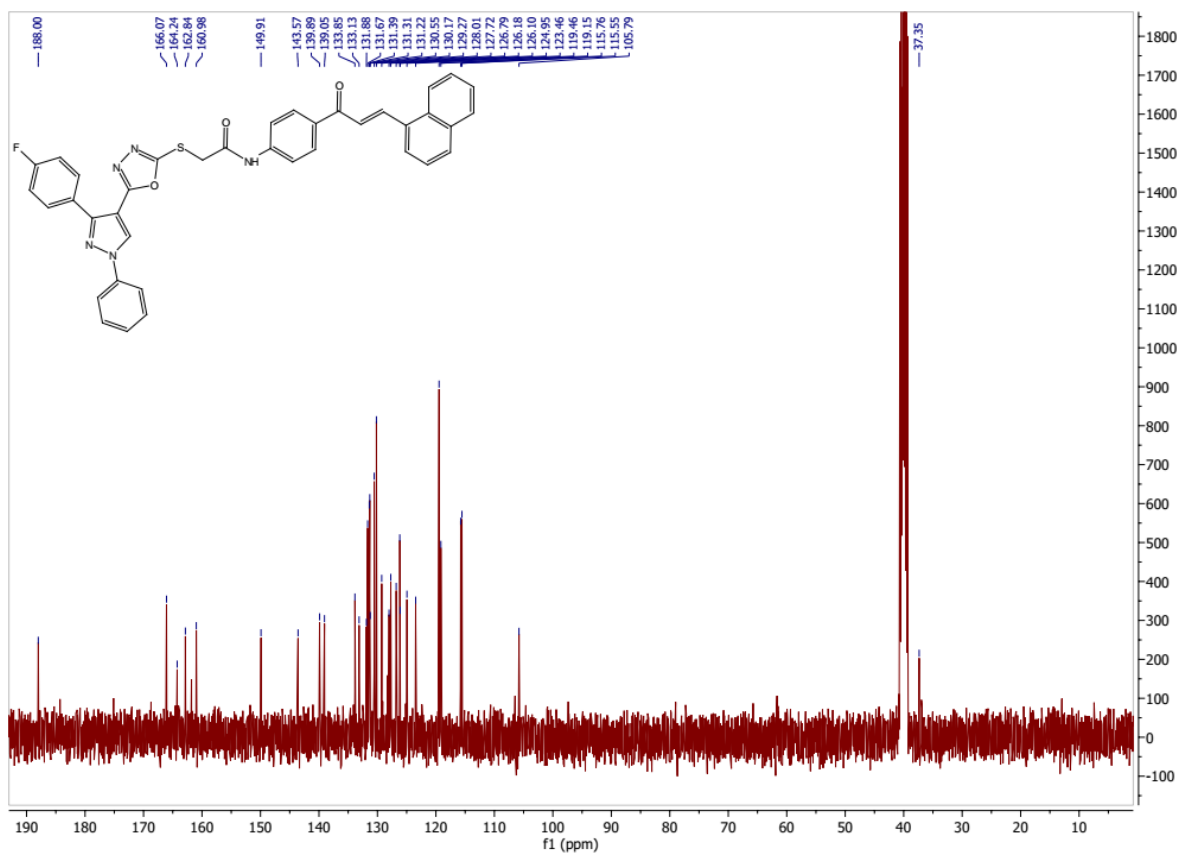
^1H NMR spectrum of compound **13h**



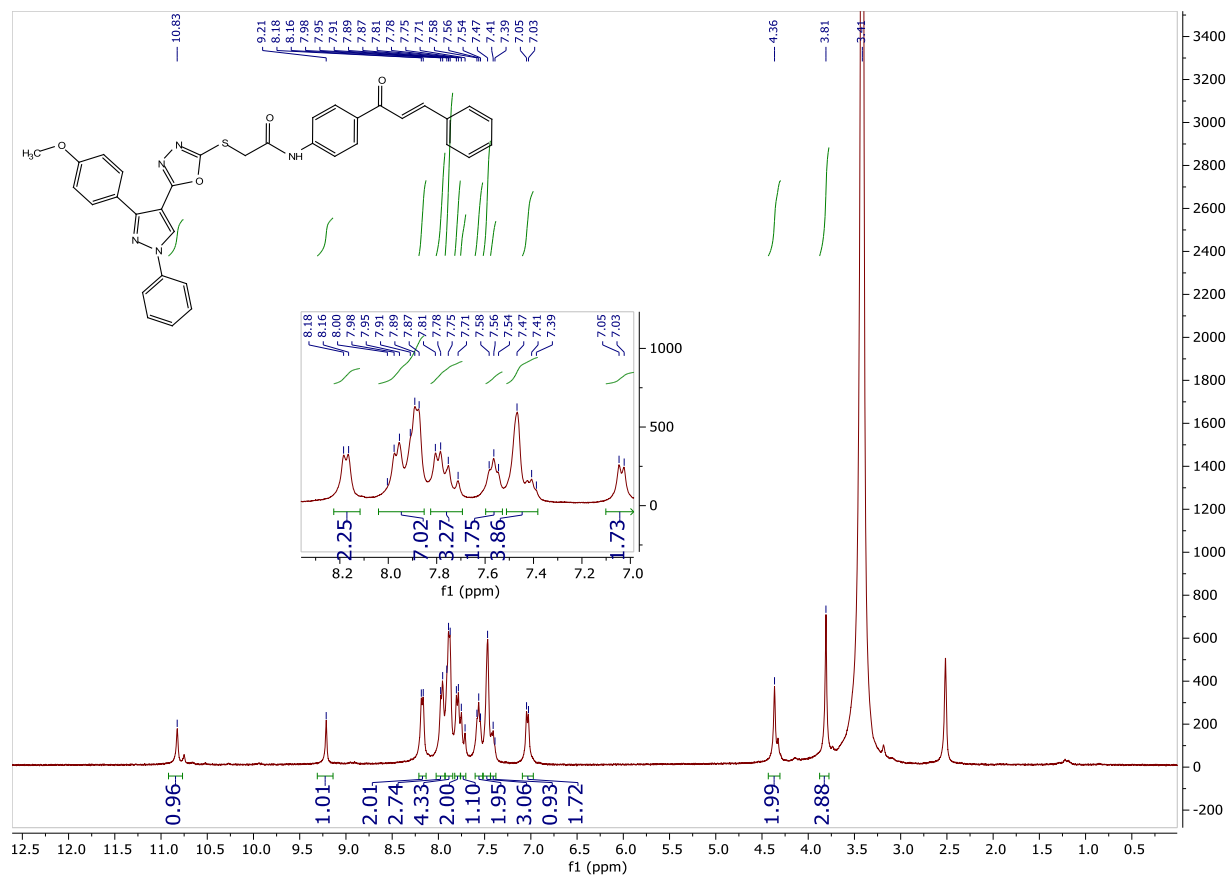
^{13}C NMR spectrum of compound **13h**



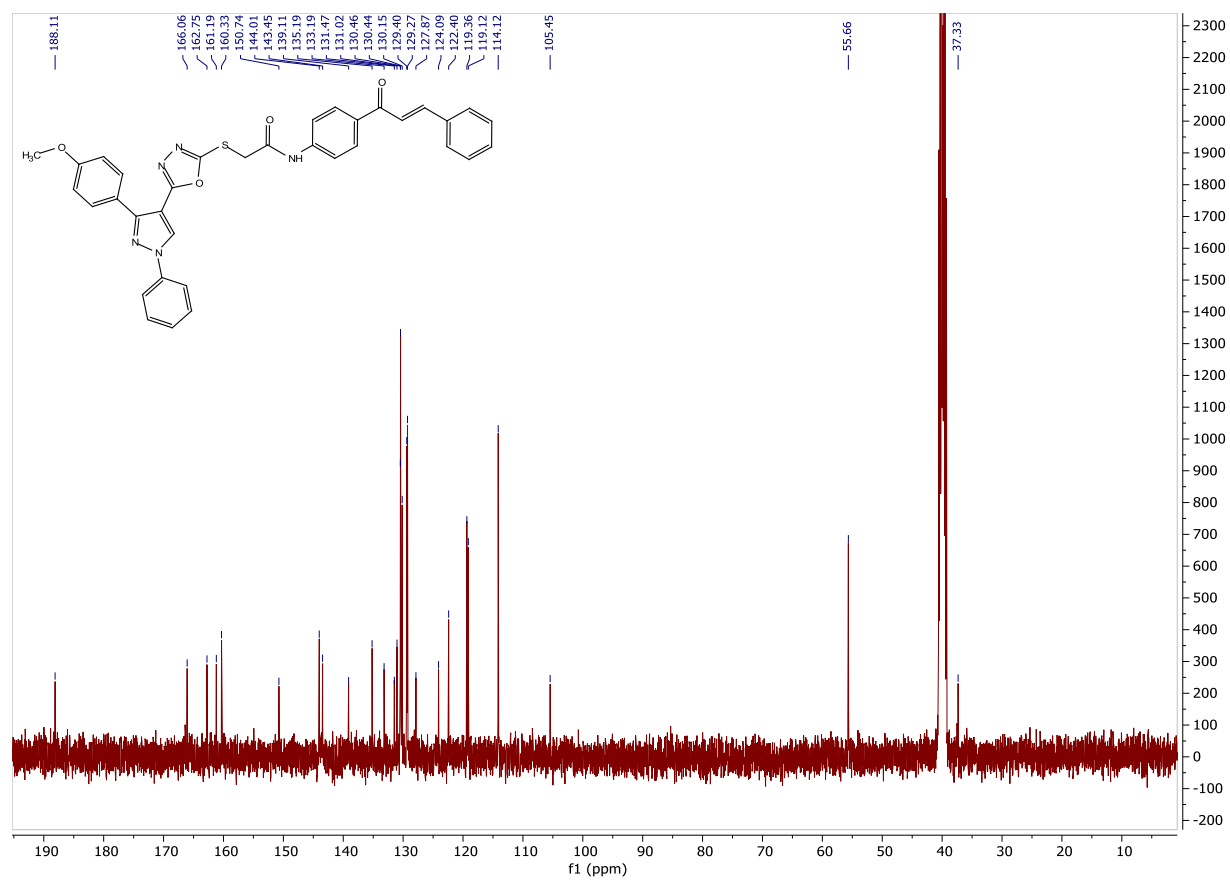
¹H NMR spectrum of compound **13i**



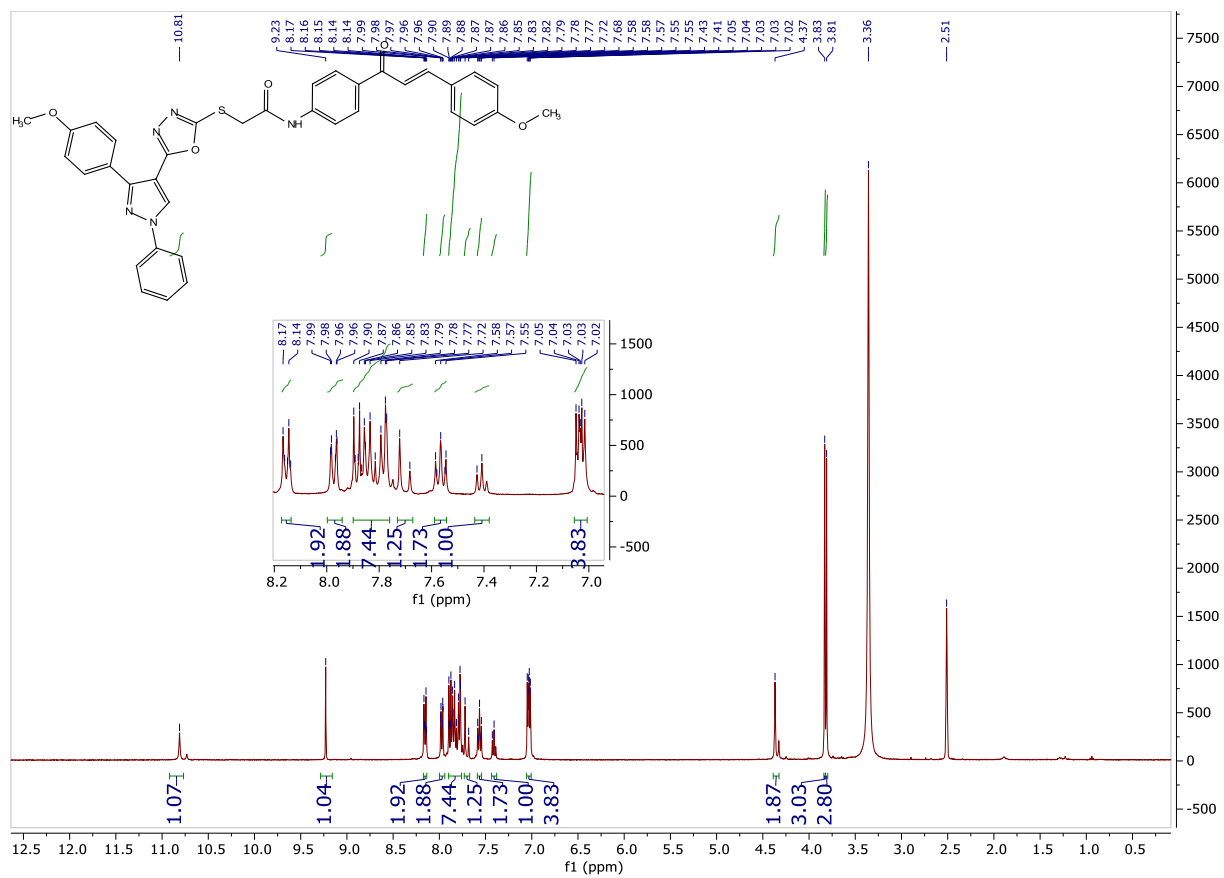
^{13}C NMR spectrum of compound **13i**



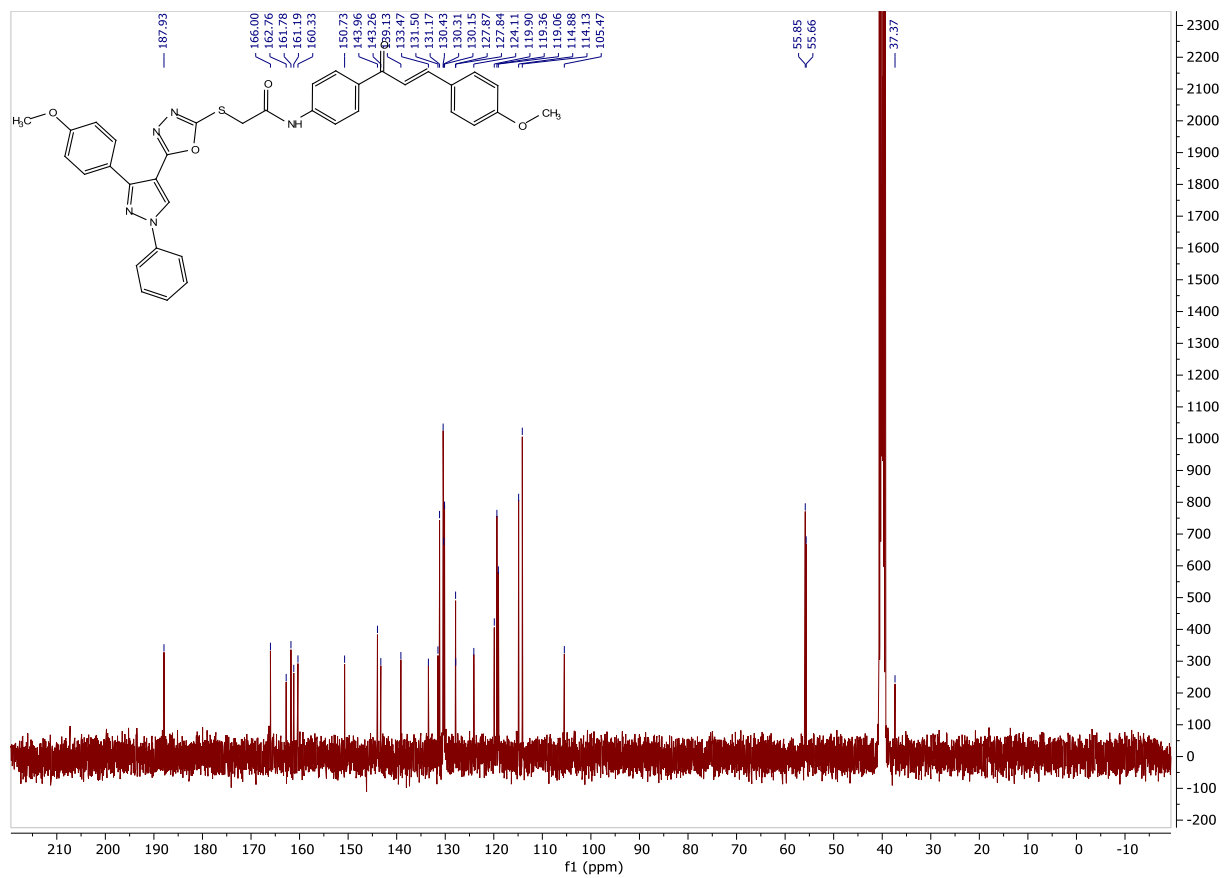
^1H NMR spectrum of compound **14a**



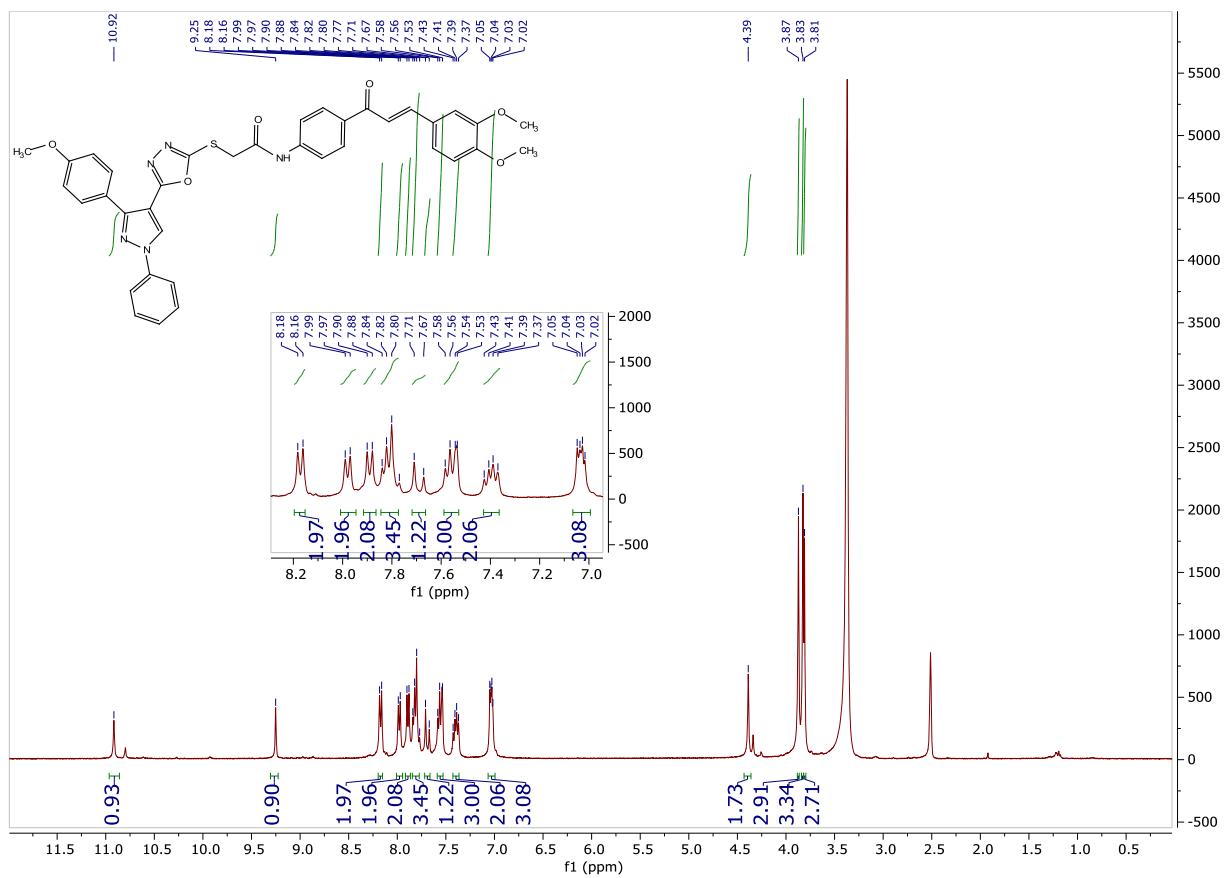
^{13}C NMR spectrum of compound **14a**



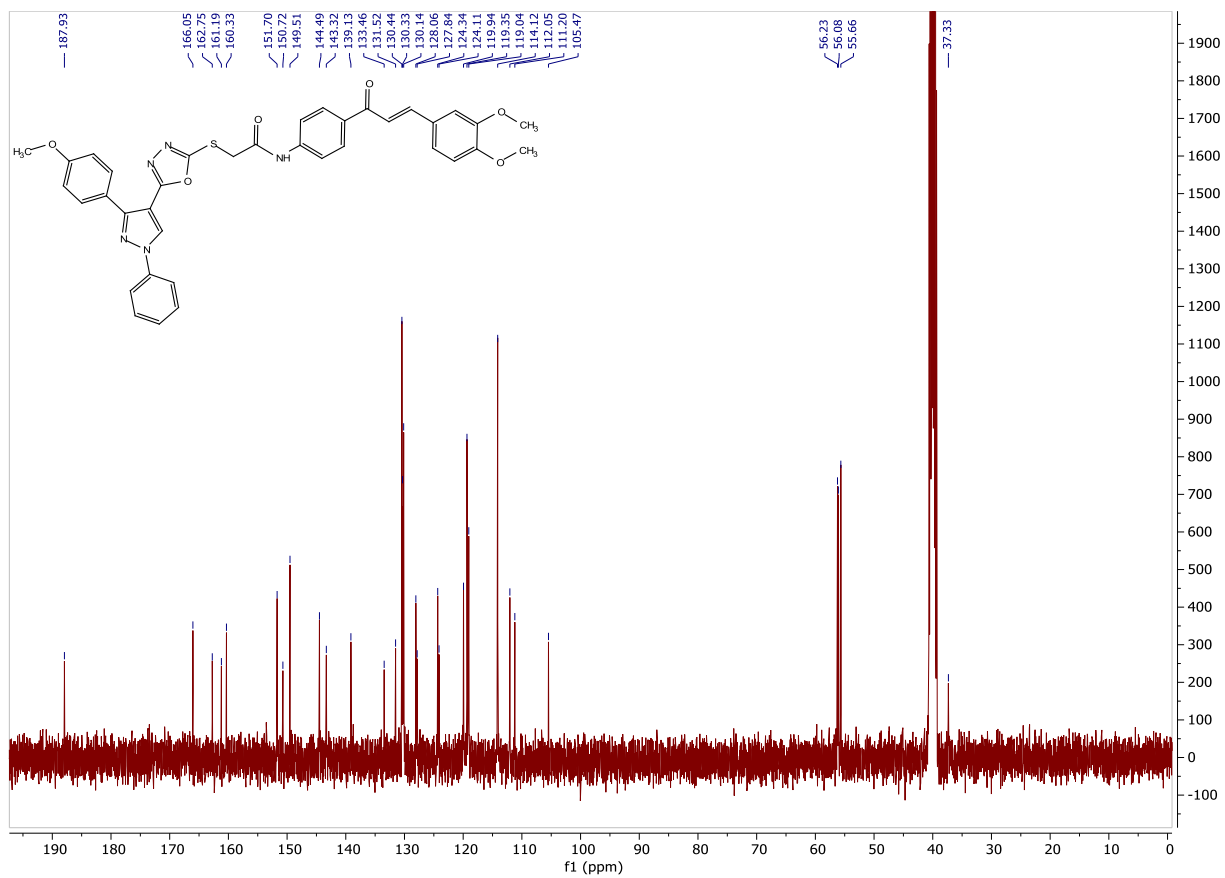
^1H NMR spectrum of compound **14b**



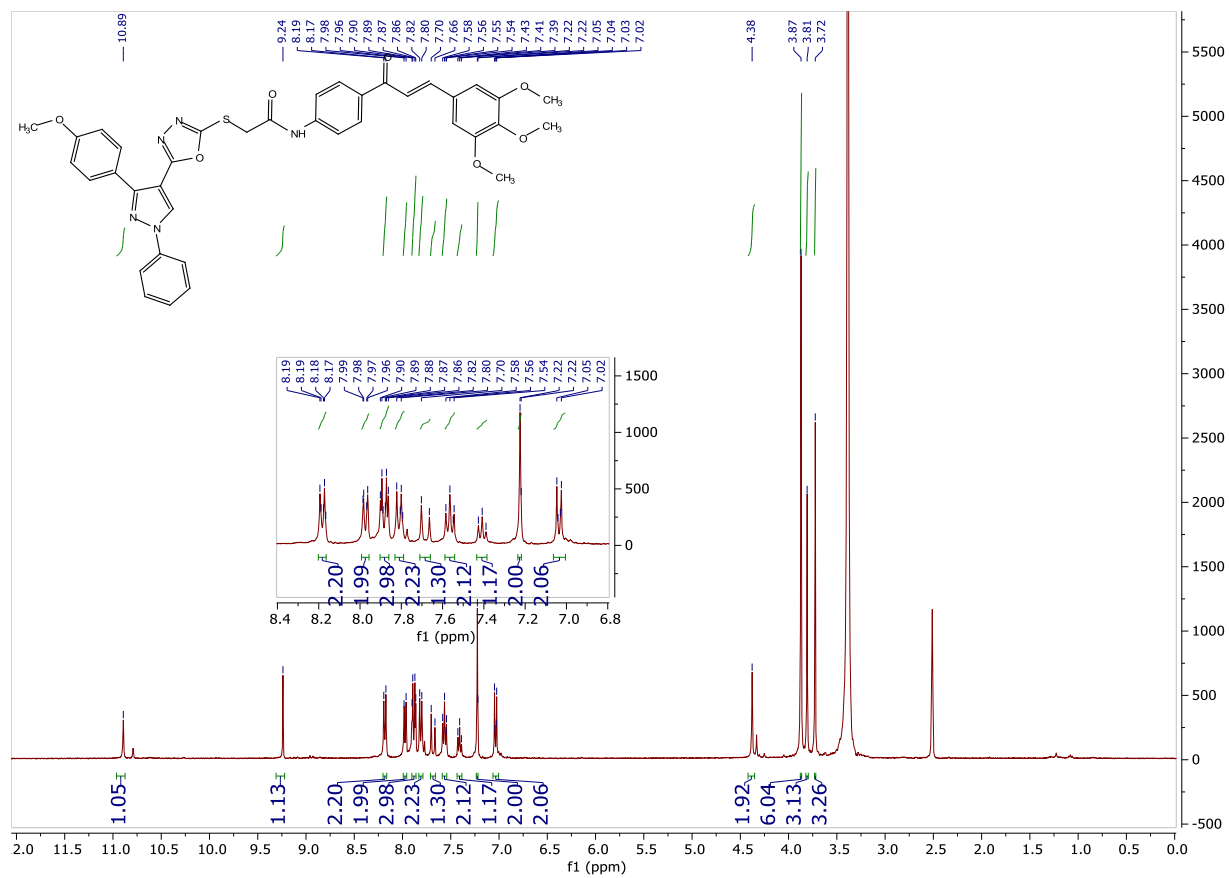
^{13}C NMR spectrum of compound **14b**



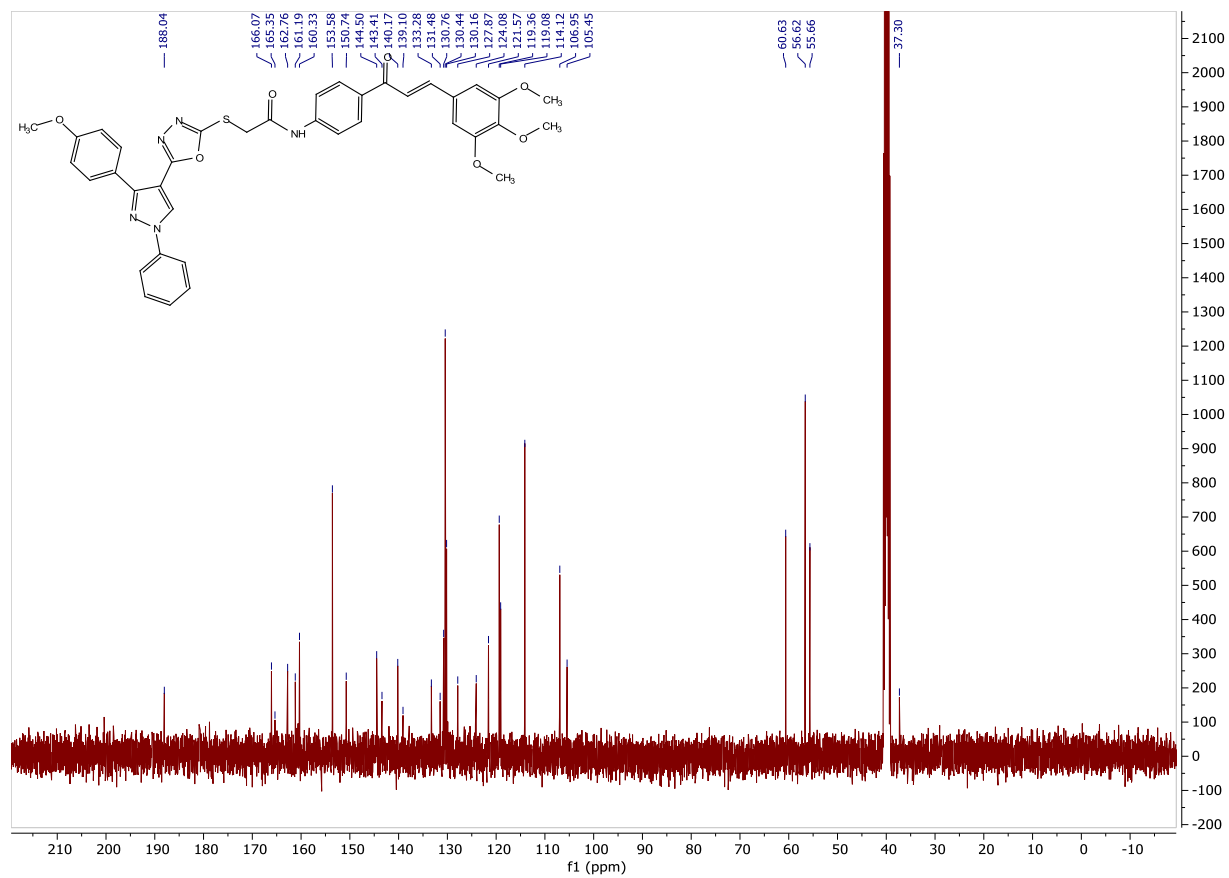
^1H NMR spectrum of compound **14c**



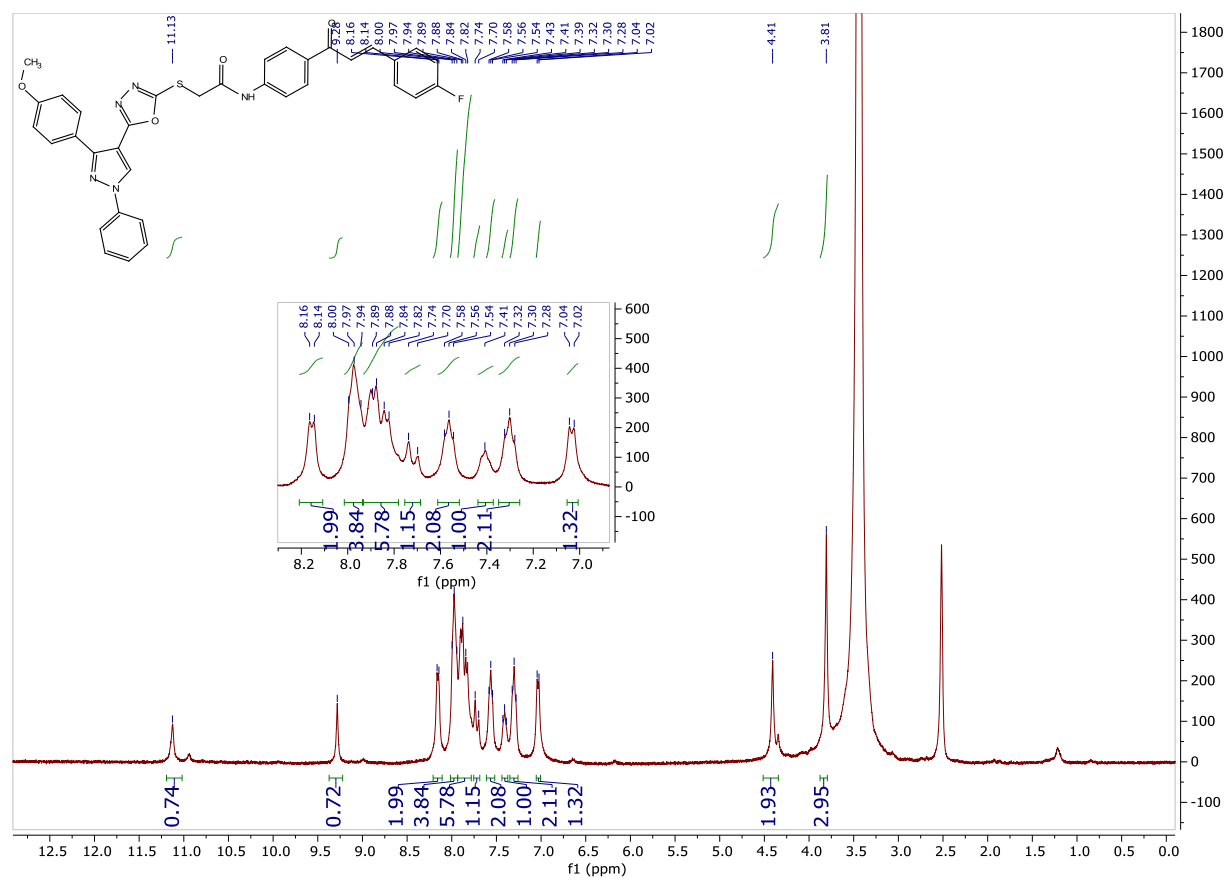
^{13}C NMR spectrum of compound **14c**



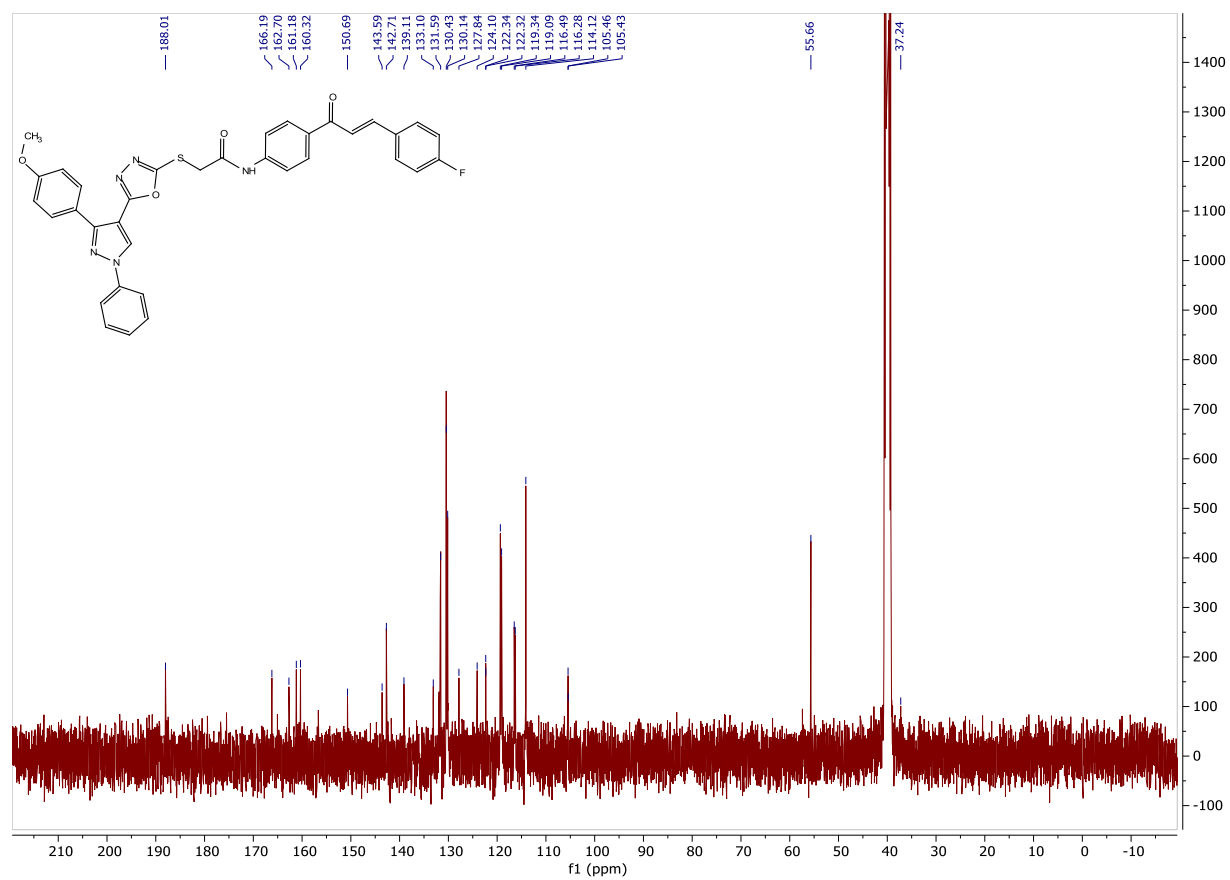
^1H NMR spectrum of compound **14d**



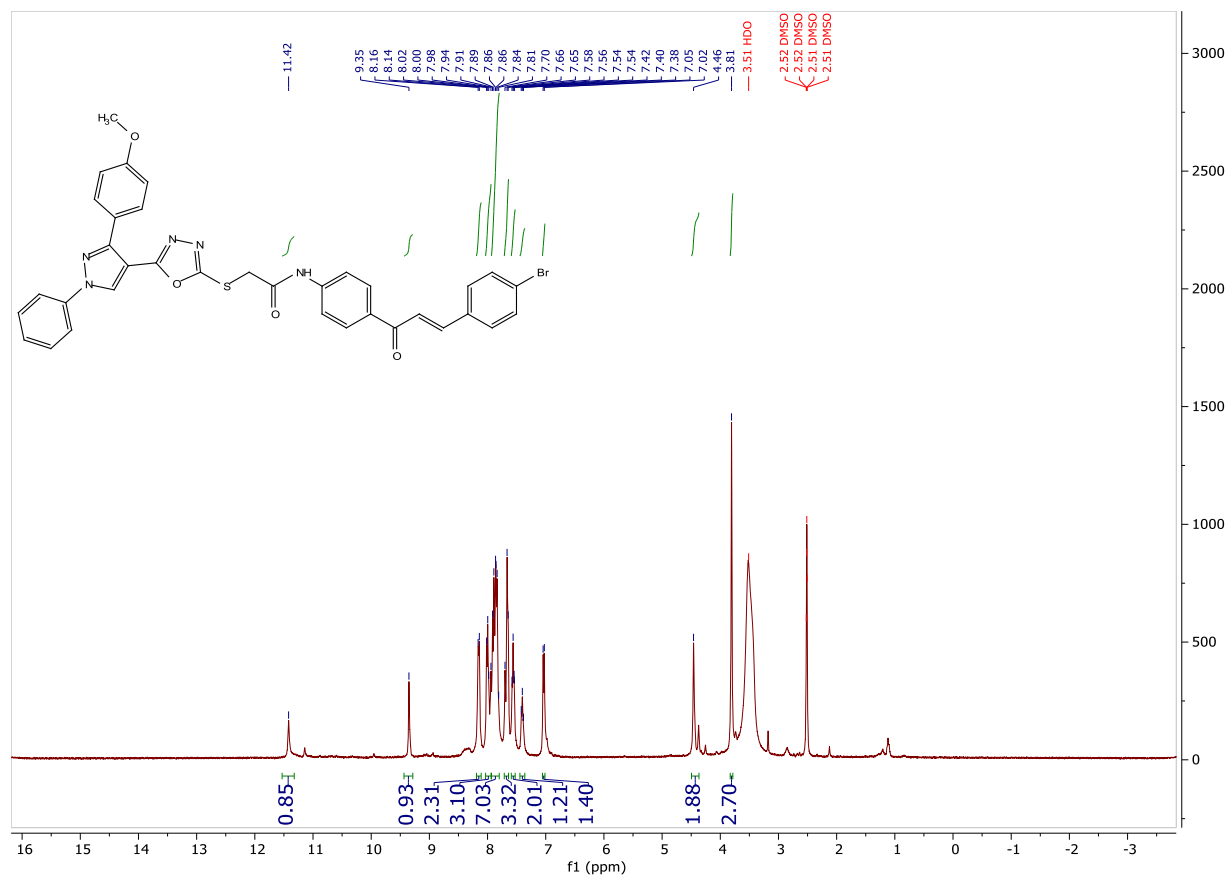
¹³C NMR spectrum of compound **14d**



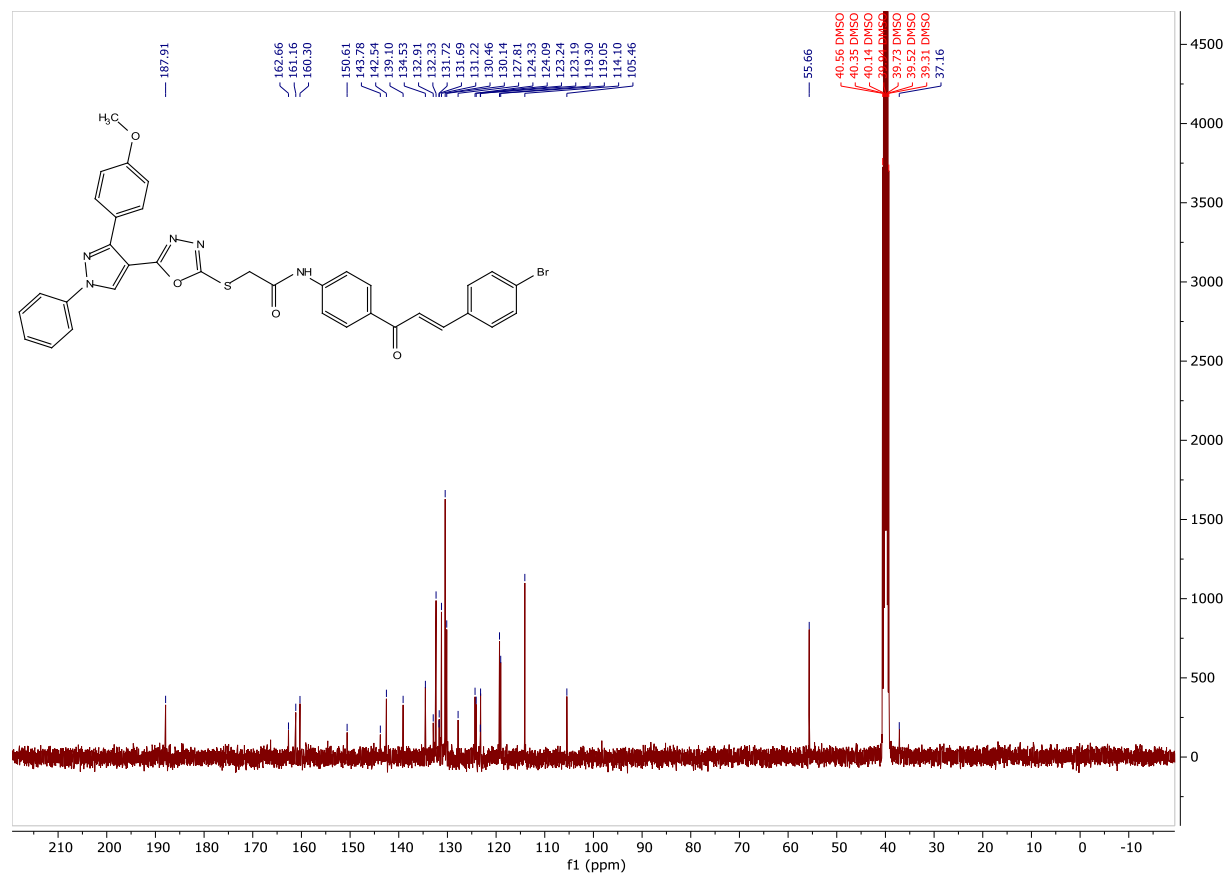
^1H NMR spectrum of compound **14e**



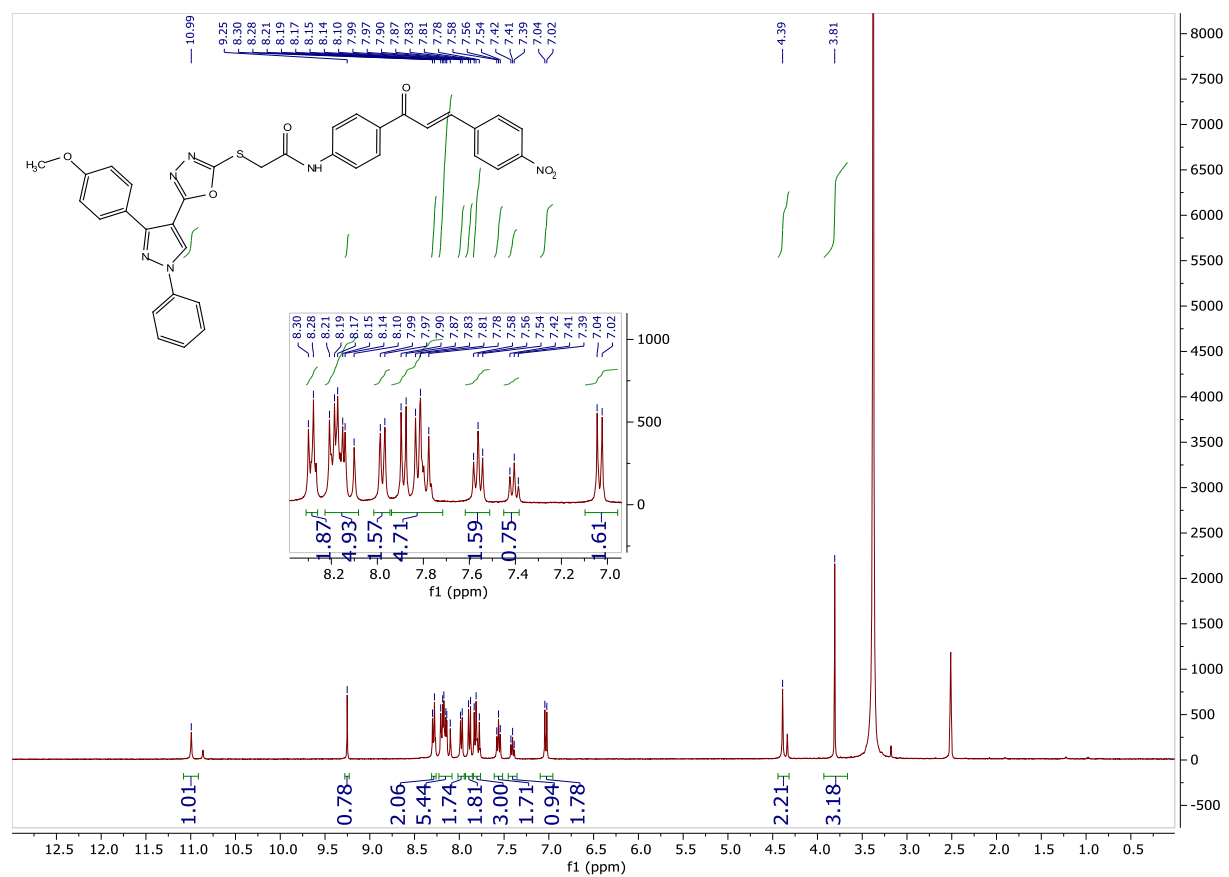
^{13}C NMR spectrum of compound **14e**



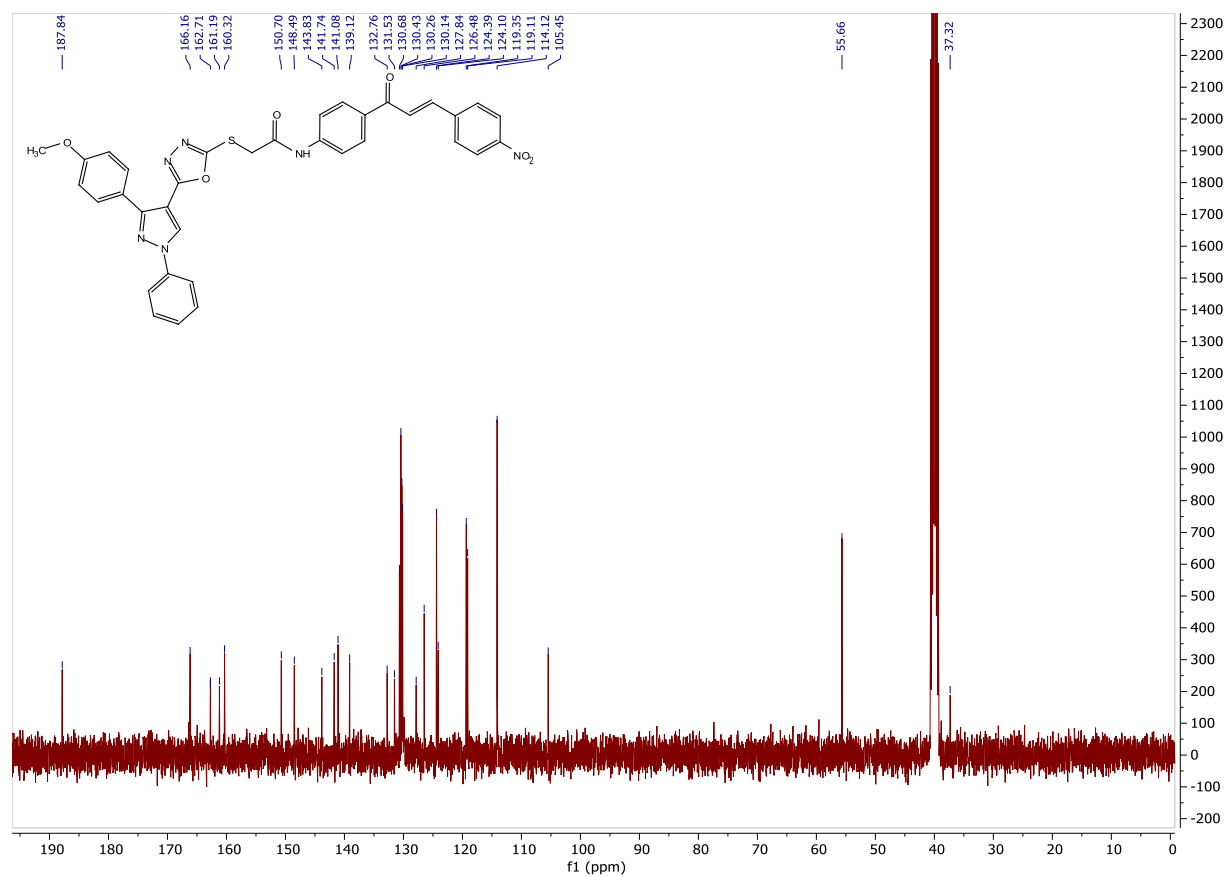
^1H NMR spectrum of compound **14f**



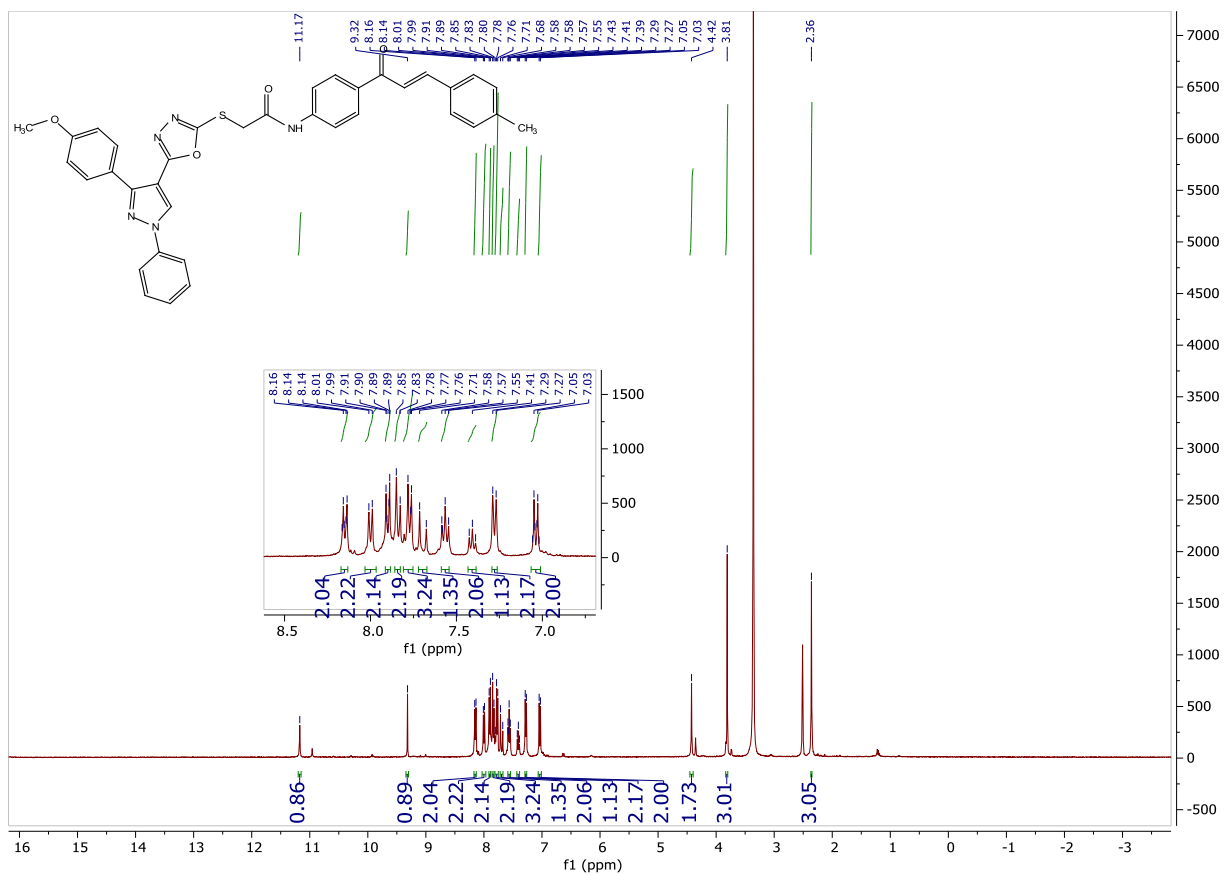
¹³C NMR spectrum of compound **14f**



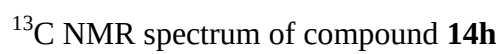
¹H NMR spectrum of compound **14g**

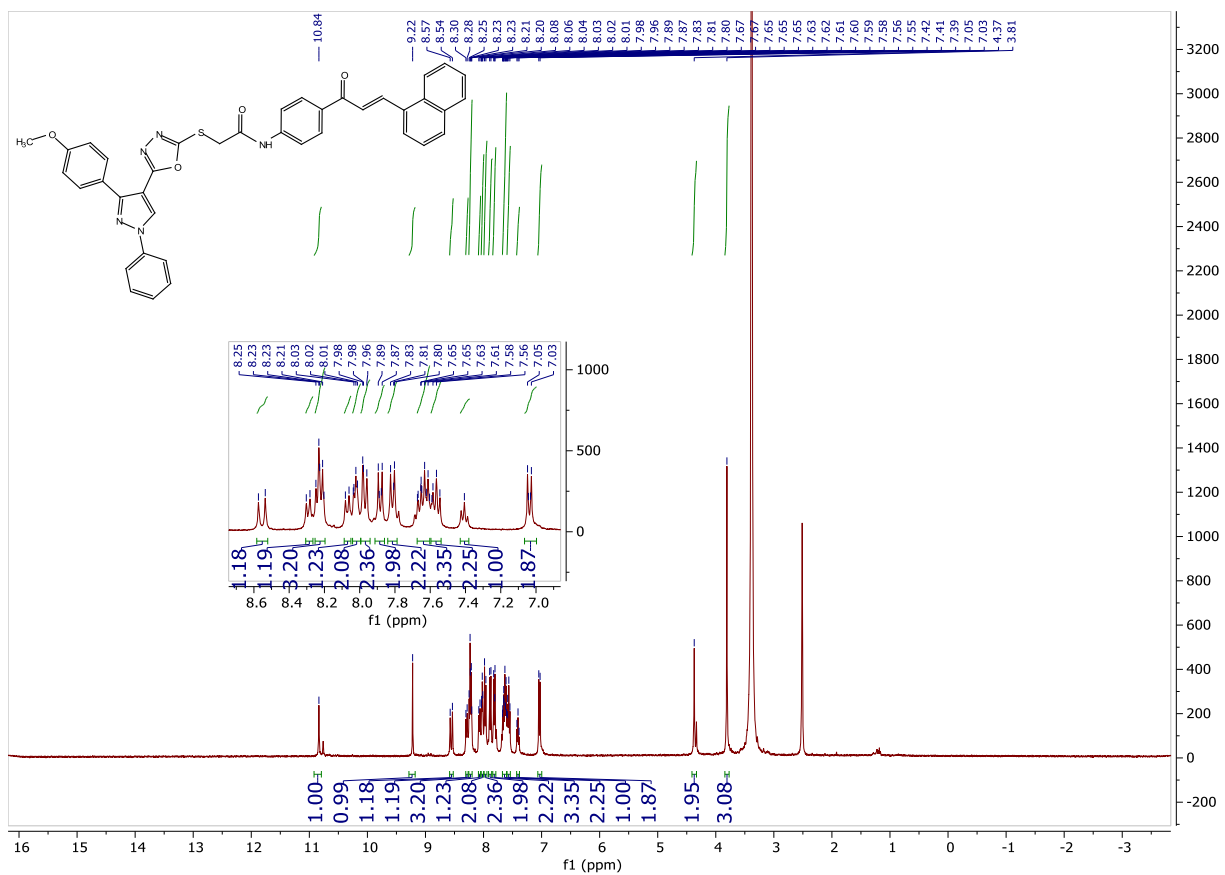


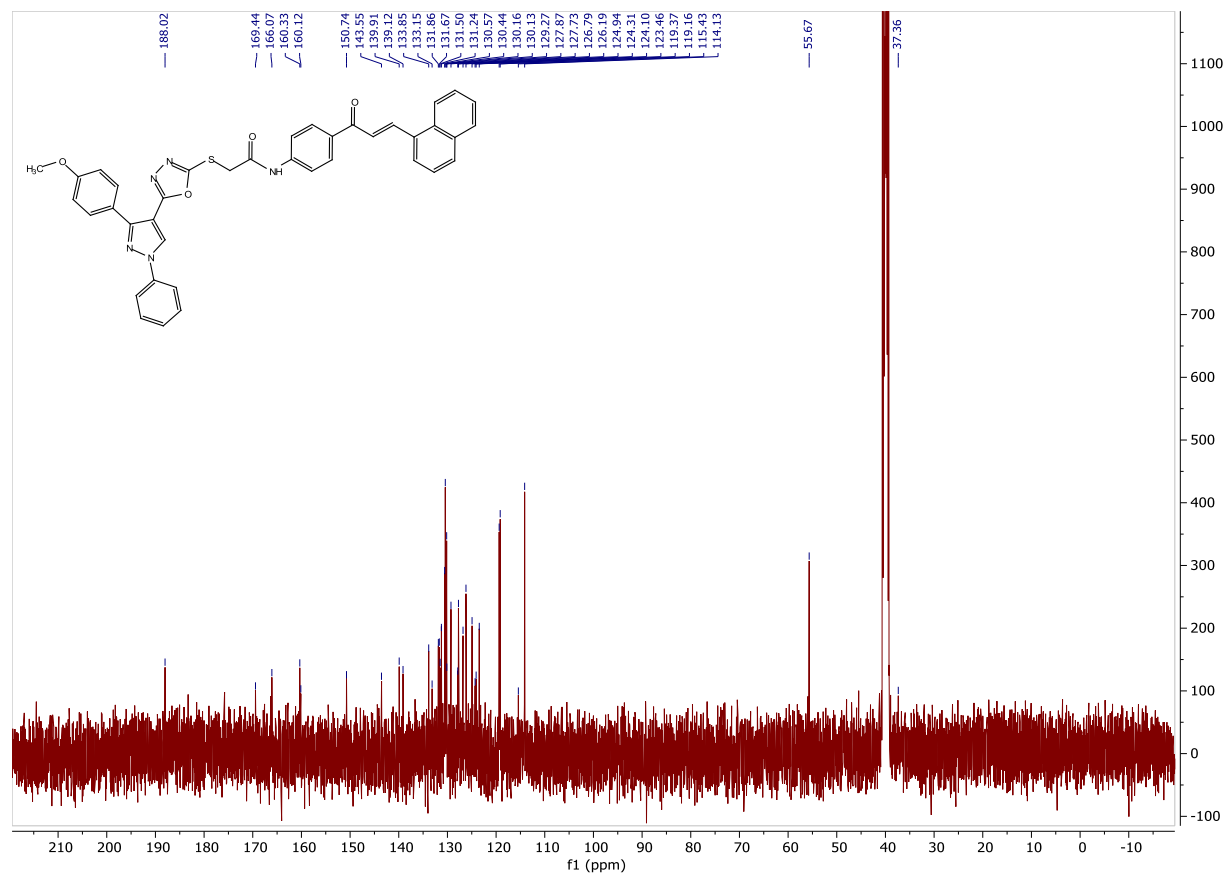
¹³C NMR spectrum of compound **14g**



¹H NMR spectrum of compound **14h**







^{13}C NMR spectrum of compound **14i**

HPLC data

22/05/2025 11:48 ص

Chromatogram D:\AHMED\IMPURITY\drug 10a.prm

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CENTRAL LAB

DR MOHAMED GAMAL

Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 10a.prm	File Created	: 22/05/2025 11:40:21 ص
Origin	: Acquired, Acquisition started 22/05/2025 11:25:12 ص	Acquired Date	: 22/05/2025 11:40:21 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 22/05/2025 11:47:57 ص, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 11:48:14 ص
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID	: drug 10a
Sample	:

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [µL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1	: 0
AnalysisUserVar2	: 0
AnalysisUserVar3	: 0

Method User Variables:

MethodUserVar1	: 0
MethodUserVar2	: 0
MethodUserVar3	: 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

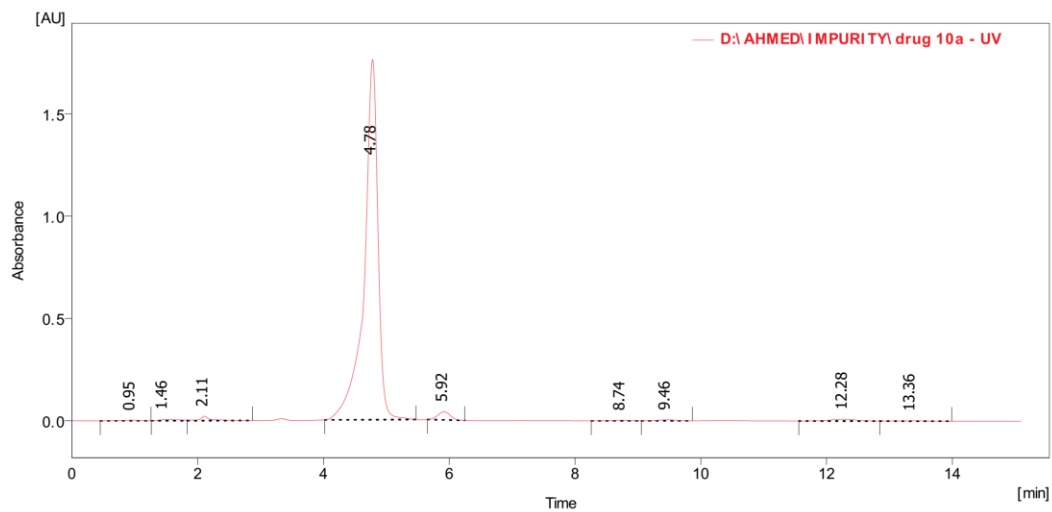
HPLC chromatogram info of compound 10a.

HPLC chromatogram info of compound 10a.

22/05/2025 11:48 ص

Chromatogram D:\AHMED\IMPURITY\drug 10a.prm

Page 2 of 2



Result Table (Uncal - D:\AHMED\IMPURITY\drug 10a - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	0.948	70.130	0.2	
2	1.463	137.381	0.5	
3	2.108	268.987	1.0	
4	4.782	26739.696	94.6	
5	5.918	552.330	2.0	
6	8.742	79.680	0.3	
7	9.462	118.724	0.4	
8	12.277	254.366	0.9	
9	13.355	38.686	0.1	
	Total	28259.980	100.0	

HPLC chromatogram of compound 10a.



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DR MOHAMED GAMAL

Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 10 b.prm	File Created	: 04/12/2024 02:36:23 م
Origin	: Acquired, Acquisition started 04/12/2024 02:20:12 م	Acquired Date	: 04/12/2024 02:36:23 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 04/12/2024 02:51:12 م, IA: 8.0 Rev.3	Printed Date	: 04/12/2024 02:51:19 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 10 b
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toIt\toIt separation - #188; 04/12/2024 02:01:05 م
Description : aa
Created : 17/07/2023 02:47:53 ص By : Administrator
Modified : 04/12/2024 02:01:05 م By : Administrator

Processing Method : D:\ahmed\toIt\toIt separation - #188; 04/12/2024 02:01:05 م + manual changes
Description : aa
Created : 17/07/2023 02:47:53 ص By : Administrator
Modified : 04/12/2024 02:01:05 م By : Administrator

Column :
Mobile Phase :
Flow Rate :
Note :

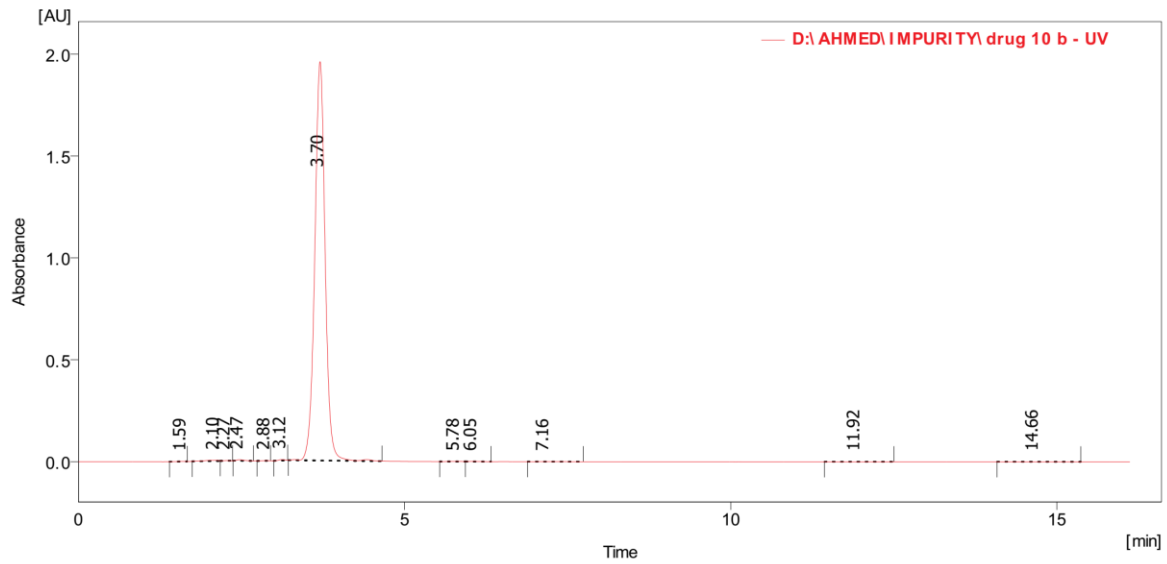
Detection :
Temperature :
Pressure :

Autostop : None
Subtraction Chromatogram : (None)

External Start : Start Only, Down
Matching : Scale Subtraction Chromatogram

Base	: Not Used	Calibration File	: None	Calculation	: Uncal
Scale Factor	: Not Used	Units After Scaling	: Not Used	Uncal. Response	: 0
Unretained Time	: 0.00 min	Column Length	: 50.00 mm	Column Calc.	: From Width at 50% of Height
Result Table Reports	: All Peaks	Hide ISTD Peak	: Enabled		
Method User Variables:					
MethodUserVar1	: 0	MethodUserVar2	: 0	MethodUserVar3	: 0

HPLC chromatogram info of compound 10b.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 10 b - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.590	5.101	0.0	
2	2.098	54.444	0.3	
3	2.270	10.819	0.0	
4	2.467	41.317	0.2	
5	2.877	8.302	0.0	
6	3.122	25.791	0.1	
7	3.703	21560.834	99.1	
8	5.782	13.634	0.1	
9	6.048	11.554	0.1	
10	7.155	17.094	0.1	
11	11.922	4.525	0.0	
12	14.657	8.812	0.0	
	Total	21762.226	100.0	

HPLC chromatogram of compound 10b.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 10c.prm	File Created	: 22/05/2025 11:56:02 ص
Origin	: Acquired, Acquisition started 22/05/2025 11:40:30 ص	Acquired Date	: 22/05/2025 11:56:02 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 11:58:58 ص, 1A: 8.0 Rev.3	Printed Date	: 22/05/2025 11:59:28 ص
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 10c
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

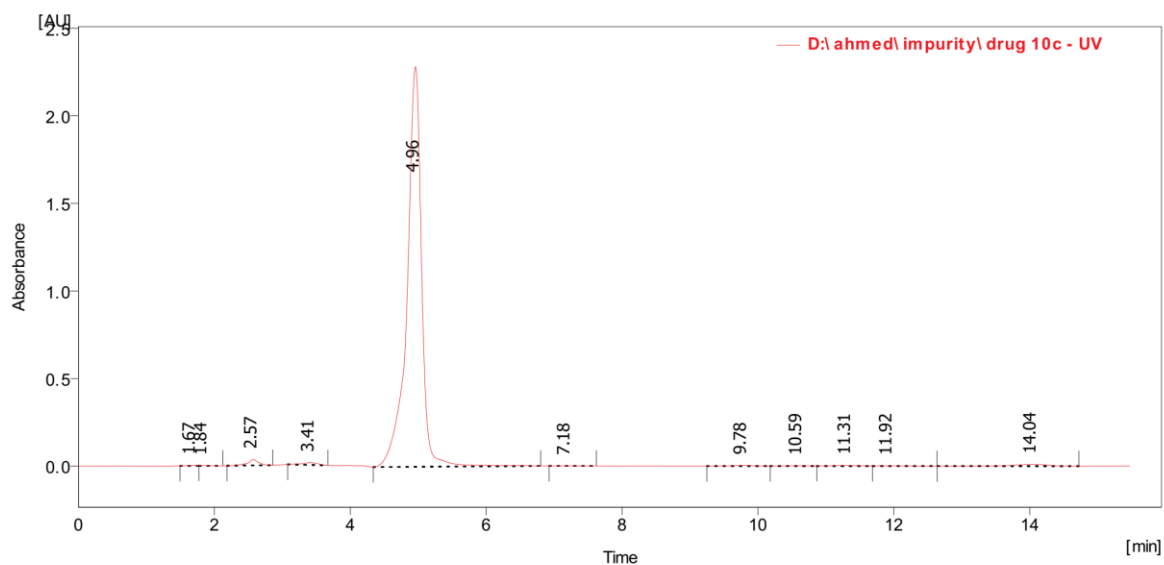
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 10c.



Result Table (Uncal - D:\ahmed\impurity\drug 10c - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.665	29.135	0.1	
2	1.837	24.191	0.1	
3	2.572	391.196	1.1	
4	3.413	223.761	0.6	
5	4.958	34020.741	96.1	
6	7.178	17.780	0.1	
7	9.778	90.830	0.3	
8	10.590	60.300	0.2	
9	11.308	127.613	0.4	
10	11.920	59.287	0.2	
11	14.040	363.048	1.0	
	Total	35407.882	100.0	

HPLC chromatogram of compound 10c.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 11 a.prm	File Created	: 04/12/2024 03:09:24 م
Origin	: Acquired, Acquisition started 04/12/2024 02:54:13 م	Acquired Date	: 04/12/2024 03:09:24 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 04/12/2024 03:23:00 م, IA: 8.0 Rev.3	Printed Date	: 04/12/2024 03:23:45 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 11 a
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #188; 04/12/2024 02:01:05 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #188; 04/12/2024 02:01:05 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

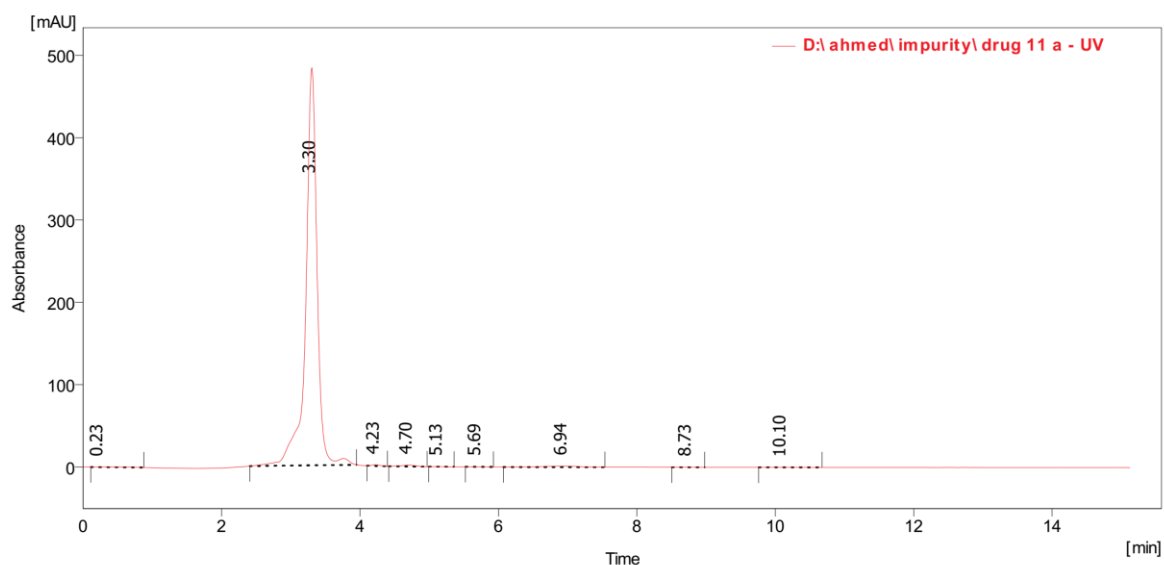
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 11a.



Result Table (Uncal - D:\ahmed\impurity\drug 11 a - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	0.233	7.001	0.1	
2	3.303	5557.814	98.3	
3	4.227	11.554	0.2	
4	4.702	23.193	0.4	
5	5.135	2.977	0.1	
6	5.693	2.942	0.1	
7	6.937	44.969	0.8	
8	8.732	0.614	0.0	
9	10.100	1.943	0.0	
Total		5653.007	100.0	

HPLC chromatogram of compound 11a.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 11 b.prm	File Created	: 04/12/2024 02:18:35 م
Origin	: Acquired, Acquisition started 04/12/2024 02:03:27 م	Acquired Date	: 04/12/2024 02:18:35 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 04/12/2024 02:38:58 م, IA: 8.0 Rev.3	Printed Date	: 04/12/2024 02:43:10 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 11 b
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #188; 04/12/2024 02:01:05 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #188; 04/12/2024 02:01:05 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Column :
Mobile Phase :
Flow Rate :
Note :

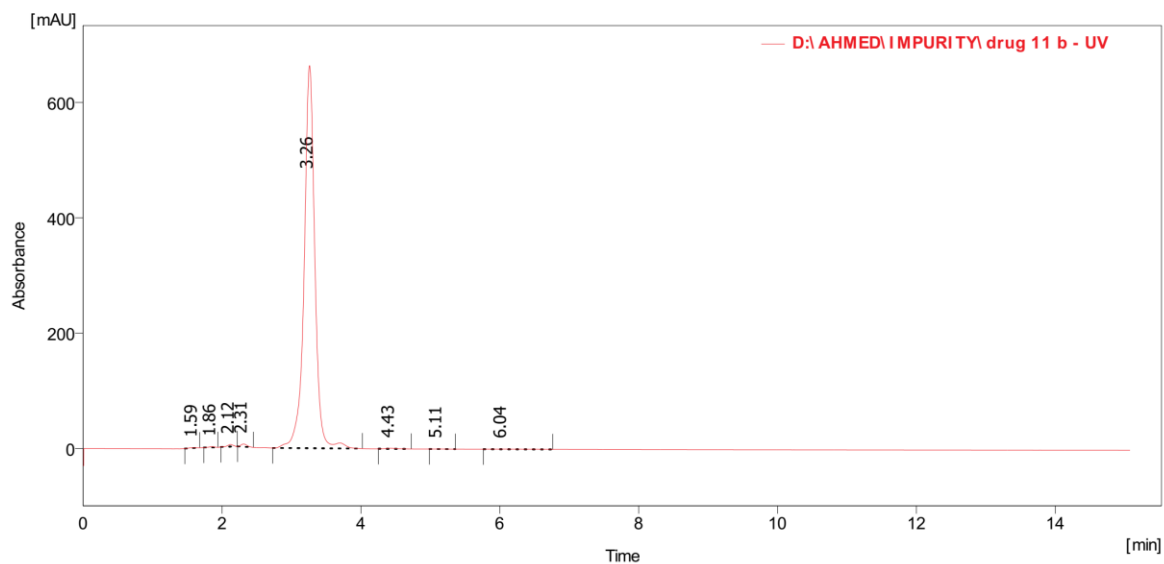
Detection :
Temperature :
Pressure :

Autostop : None
Subtraction Chromatogram : (None)

External Start : Start Only, Down
Matching : Scale Subtraction Chromatogram

Base	: Not Used	Calibration File	: None	Calculation	: Uncal
Scale Factor	: Not Used	Units After Scaling	: Not Used	Uncal. Response	: 0
Unretained Time	: 0.00 min	Column Length	: 50.00 mm	Column Calc.	: From Width at 50% of Height
Result Table Reports	: All Peaks	Hide ISTD Peak	: Enabled		
Method User Variables:					
MethodUserVar1	: 0	MethodUserVar2	: 0	MethodUserVar3	: 0

HPLC chromatogram info of compound 11b.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 11 b - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.592	5.433	0.1	
2	1.857	6.274	0.1	
3	2.123	21.236	0.3	
4	2.312	28.430	0.4	
5	3.262	7127.562	98.9	
6	4.430	11.805	0.2	
7	5.113	2.389	0.0	
8	6.045	7.129	0.1	
	Total	7210.259	100.0	

HPLC chromatogram of compound 11b.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 11 c.prm	File Created	: 04/12/2024 03:25:33 م
Origin	: Acquired, Acquisition started 04/12/2024 03:10:28 م	Acquired Date	: 04/12/2024 03:25:33 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 04/12/2024 03:29:39 م, IA: 8.0 Rev.3	Printed Date	: 04/12/2024 03:29:46 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 11 c
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\to\to\to separation - #188; 04/12/2024 02:01:05 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Processing Method : D:\ahmed\to\to\to separation - #188; 04/12/2024 02:01:05 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 04/12/2024 02:01:05 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

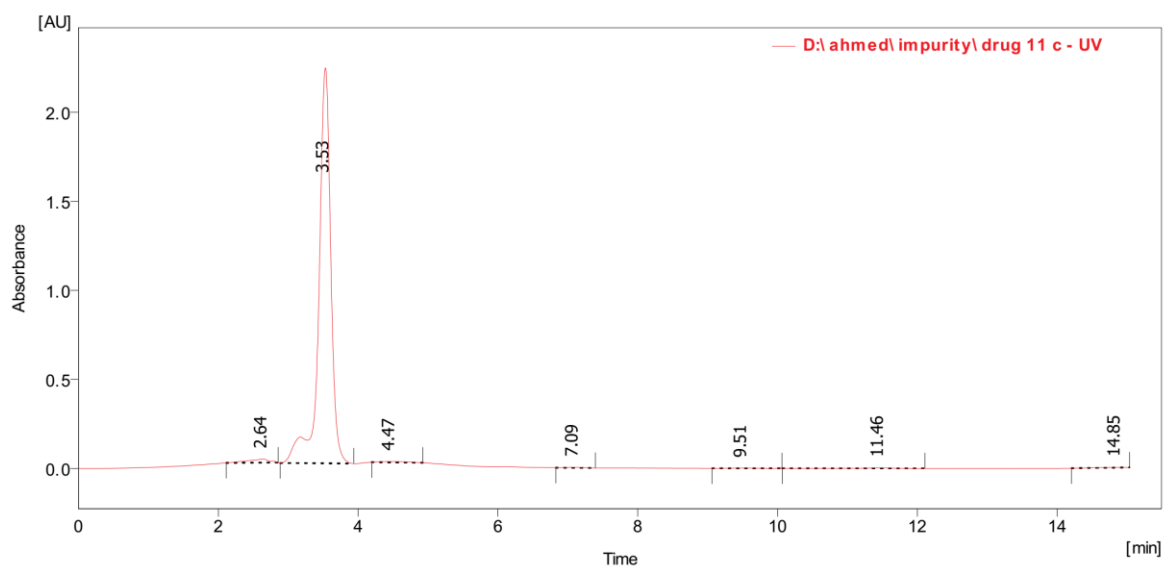
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 11c.



Result Table (Uncal - D:\ahmed\impurity\drug 11 c - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	2.643	437.635	1.6	
2	3.532	26650.604	97.2	
3	4.472	141.085	0.5	
4	7.095	48.480	0.2	
5	9.505	30.345	0.1	
6	11.463	72.015	0.3	
7	14.850	48.965	0.2	
	Total	27429.129	100.0	

HPLC chromatogram info of compound 11c.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12a.prm	File Created	: 20/05/2025 11:40:53 ص
Origin	: Acquired, Acquisition started 20/05/2025 12:29:45 م	Acquired Date	: 20/05/2025 12:45:44 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:13:35 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:13:49 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12a
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

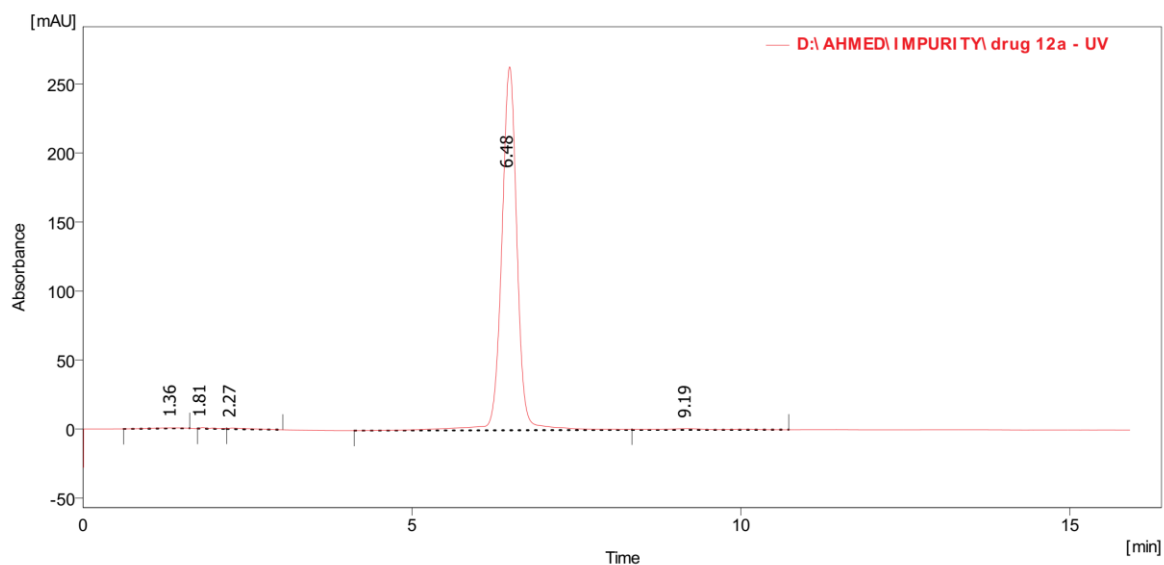
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12a.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12a - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.362	12.515	0.3	
2	1.813	10.646	0.2	
3	2.270	17.495	0.4	
4	6.483	4335.925	97.8	
5	9.187	57.224	1.3	
Total		4433.804	100.0	

HPLC chromatogram of compound 12a.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12b.prm	File Created	: 20/05/2025 11:54:18 ص
Origin	: Acquired, Acquisition started 20/05/2025 12:10:59 م	Acquired Date	: 20/05/2025 12:26:48 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:04:36 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:06:26 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12b
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #198; 20/05/2025 12:06:15 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:06:15 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #198; 20/05/2025 12:06:15 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:06:15 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

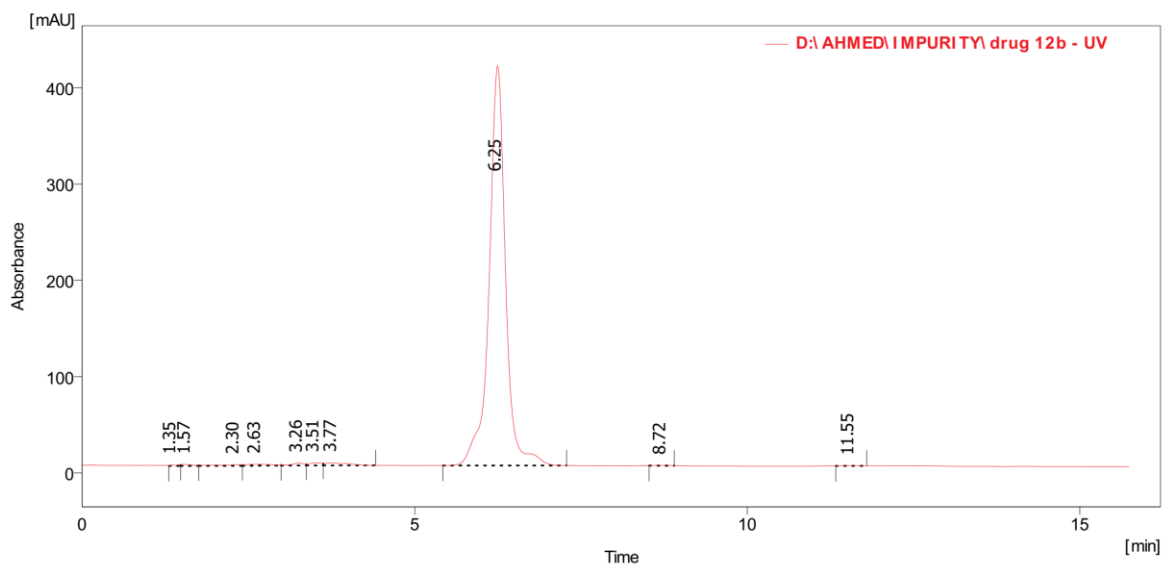
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12b.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12b - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.353	7.808	0.1	
2	1.572	16.830	0.2	
3	2.303	27.765	0.4	
4	2.627	39.575	0.5	
5	3.257	34.489	0.5	
6	3.507	35.061	0.5	
7	3.768	65.284	0.9	
8	6.247	7145.063	96.8	
9	8.720	5.176	0.1	
10	11.547	2.464	0.0	
Total		7379.516	100.0	

HPLC chromatogram of compound 12b.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12c.prm	File Created	: 20/05/2025 01:02:16 م
Origin	: Acquired, Acquisition started 20/05/2025 12:46:54 م	Acquired Date	: 20/05/2025 01:02:15 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:22:27 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:22:42 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12c
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص By : Administrator

Modified : 20/05/2025 12:28:36 م By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص By : Administrator

Modified : 20/05/2025 12:28:36 م By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

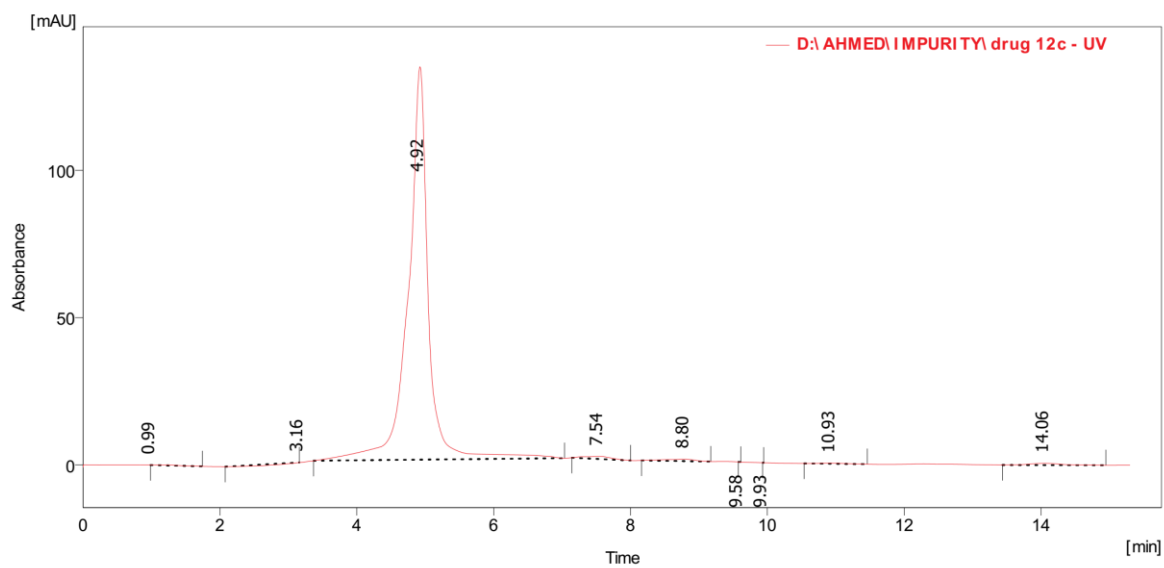
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12c.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12c - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	0.990	2.963	0.1	
2	3.158	15.296	0.5	
3	4.923	2733.891	96.9	
4	7.538	24.043	0.9	
5	8.798	19.588	0.7	
6	9.578	0.006	0.0	
7	9.933	0.001	0.0	
8	10.932	5.150	0.2	
9	14.058	19.777	0.7	
	Total	2820.716	100.0	

HPLC chromatogram of compound 12c.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12d.prm	File Created	: 20/05/2025 01:33:49 م
Origin	: Acquired, Acquisition started 20/05/2025 01:04:01 م	Acquired Date	: 20/05/2025 01:33:49 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 20/05/2025 02:30:30 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:30:30 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID	: drug 12d
Sample	:

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1	: 0
AnalysisUserVar2	: 0
AnalysisUserVar3	: 0

Method User Variables:

MethodUserVar1	: 0
MethodUserVar2	: 0
MethodUserVar3	: 0

Acquisition Method	: D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م		
Description	: aa		
Created	: 17/07/2023 02:47:53 ص	By	: Administrator
Modified	: 20/05/2025 12:28:36 م	By	: Administrator

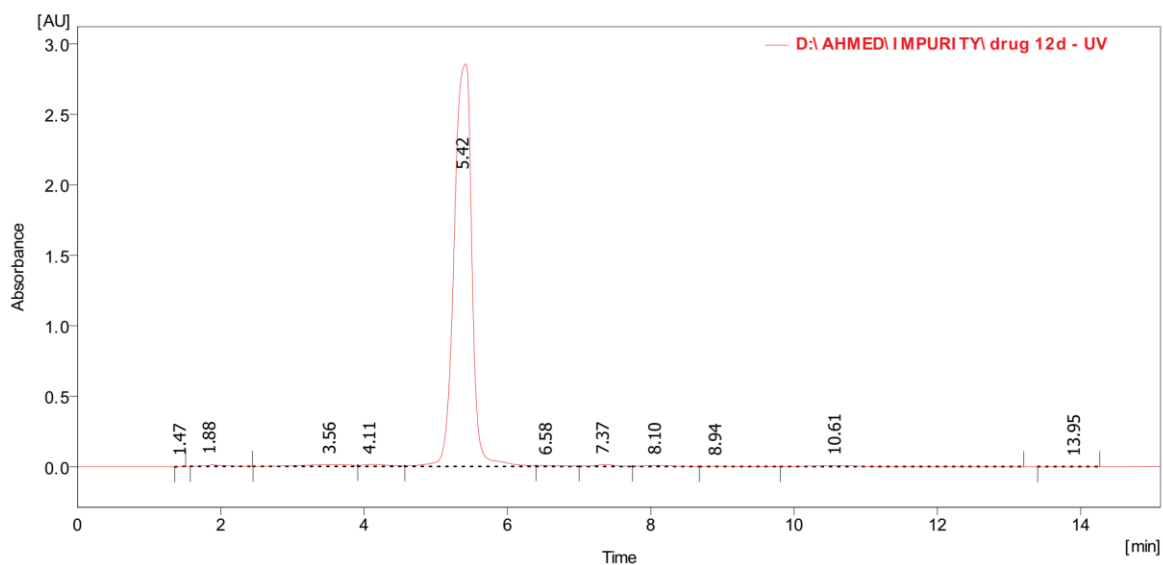
Processing Method	: D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes		
Description	: aa		
Created	: 17/07/2023 02:47:53 ص	By	: Administrator
Modified	: 20/05/2025 12:28:36 م	By	: Administrator

Column	:	Detection	:
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		

Autostop	: None	External Start	: Start Only, Down
Subtraction Chromatogram	: (None)	Matching	: Scale Subtraction Chromatogram

Base	: Not Used	Calibration File	: None	Calculation	: Uncal
Scale Factor	: Not Used	Units After Scaling	: Not Used	Uncal. Response	: 0
Unretained Time	: 0.00 min	Column Length	: 50.00 mm	Column Calc.	: From Width at 50% of Height
Result Table Reports	: All Peaks	Hide ISTD Peak	: Enabled		
Method User Variables:					
MethodUserVar1	: 0	MethodUserVar2	: 0	MethodUserVar3	: 0

HPLC chromatogram info of compound 12d.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12d - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.468	10.360	0.0	
2	1.880	180.709	0.4	
3	3.555	608.100	1.2	
4	4.113	379.706	0.7	
5	5.417	49152.371	95.4	
6	6.575	204.325	0.4	
7	7.372	312.528	0.6	
8	8.098	238.679	0.5	
9	8.940	80.135	0.2	
10	10.607	339.968	0.7	
11	13.945	6.593	0.0	
	Total	51513.472	100.0	

HPLC chromatogram of compound 12d.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12e.prm	File Created	: 20/05/2025 02:06:51 م
Origin	: Acquired, Acquisition started 20/05/2025 01:50:51 م	Acquired Date	: 20/05/2025 02:06:50 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:49:12 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:49:27 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12e
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\tolt\tolt separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\tolt\tolt separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

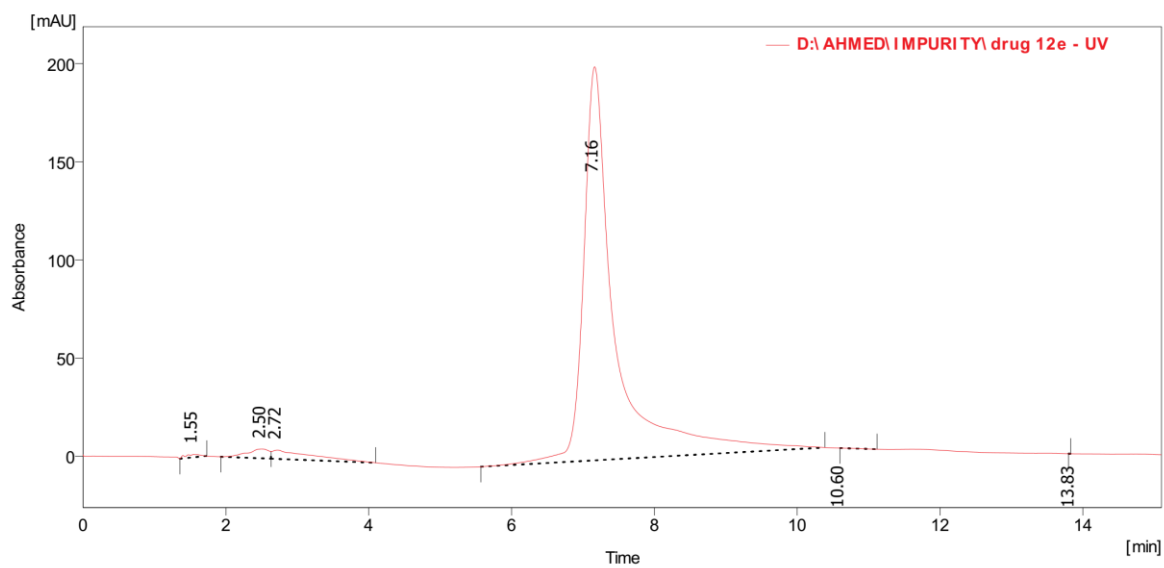
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12e.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12e - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.547	21.679	0.3	
2	2.505	101.392	1.6	
3	2.722	181.810	2.8	
4	7.163	6213.972	95.3	
5	10.602	1.340	0.0	
6	13.827	0.002	0.0	
	Total	6520.196	100.0	

HPLC chromatogram of compound 12e.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12f.prm	File Created	: 20/05/2025 02:22:49 م
Origin	: Acquired, Acquisition started 20/05/2025 02:07:35 م	Acquired Date	: 20/05/2025 02:22:49 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:50:54 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:51:14 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12f
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

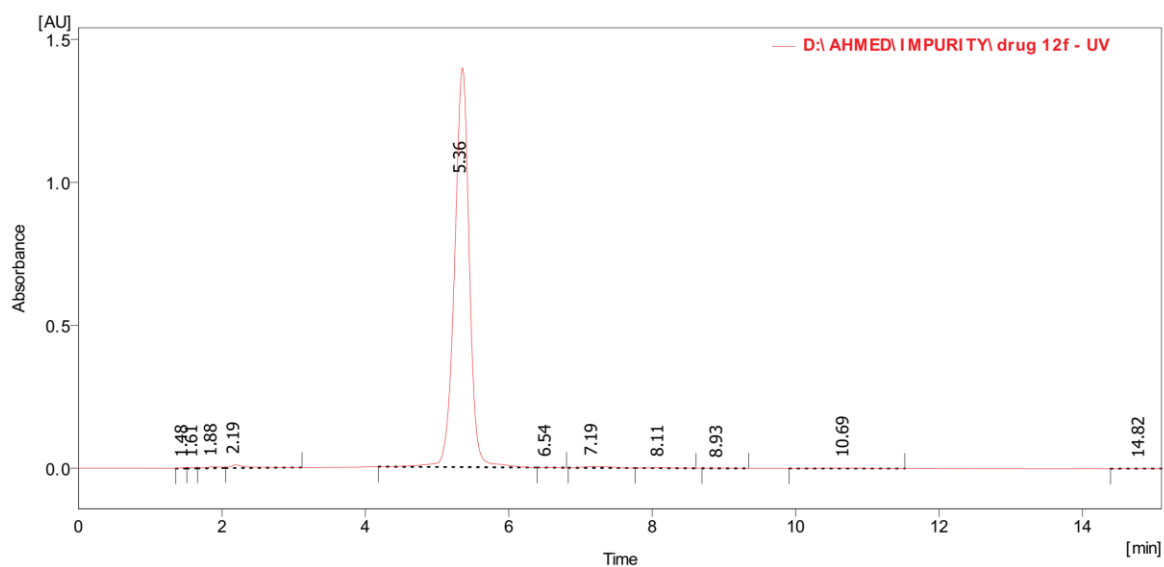
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12f.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12f - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.475	18.840	0.1	
2	1.613	21.699	0.1	
3	1.882	81.678	0.4	
4	2.195	179.763	0.9	
5	5.355	19977.900	97.2	
6	6.540	9.592	0.0	
7	7.187	135.834	0.7	
8	8.110	51.459	0.3	
9	8.932	6.941	0.0	
10	10.693	59.565	0.3	
11	14.817	6.491	0.0	
Total		20549.762	100.0	

HPLC chromatogram of compound 12f.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 12g.prm	File Created	: 20/05/2025 02:43:55 م
Origin	: Acquired, Acquisition started 20/05/2025 02:23:40 م	Acquired Date	: 20/05/2025 02:43:55 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:46:53 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:47:09 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12g
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

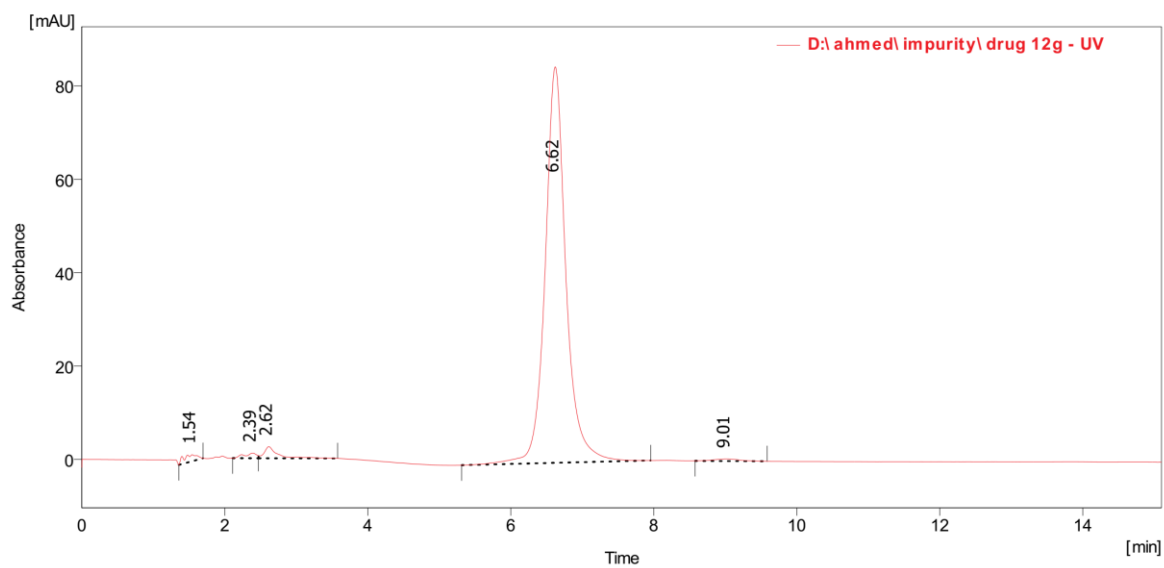
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12g.



Result Table (Uncal - D:\ahmed\impurity\drug 12g - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.543	19.604	1.1	
2	2.388	13.222	0.7	
3	2.615	33.588	1.9	
4	6.622	1718.074	95.7	
5	9.013	11.449	0.6	
Total		1795.937	100.0	

HPLC chromatogram of compound 12g.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 12h.prm	File Created	: 20/05/2025 01:50:16 م
Origin	: Acquired, Acquisition started 20/05/2025 01:35:04 م	Acquired Date	: 20/05/2025 01:50:16 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 02:34:42 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 02:36:39 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12h
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [µL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

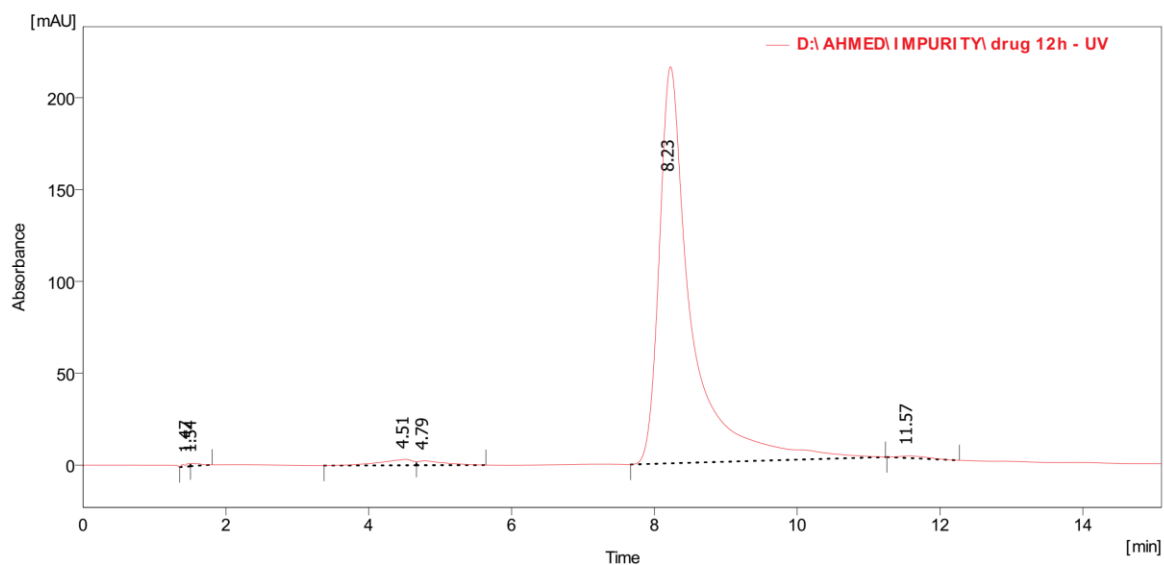
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12h.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 12h - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.473	9.427	0.1	
2	1.540	13.139	0.2	
3	4.515	102.031	1.5	
4	4.785	63.254	0.9	
5	8.227	6740.071	96.8	
6	11.565	33.247	0.5	
	Total	6961.167	100.0	

HPLC chromatogram of compound 12h.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 12i.prm	File Created	: 20/05/2025 03:00:54 م
Origin	: Acquired, Acquisition started 20/05/2025 02:45:47 م	Acquired Date	: 20/05/2025 03:00:53 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 20/05/2025 03:01:49 م, IA: 8.0 Rev.3	Printed Date	: 20/05/2025 03:02:04 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 12i
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #199; 20/05/2025 12:28:36 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 20/05/2025 12:28:36 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

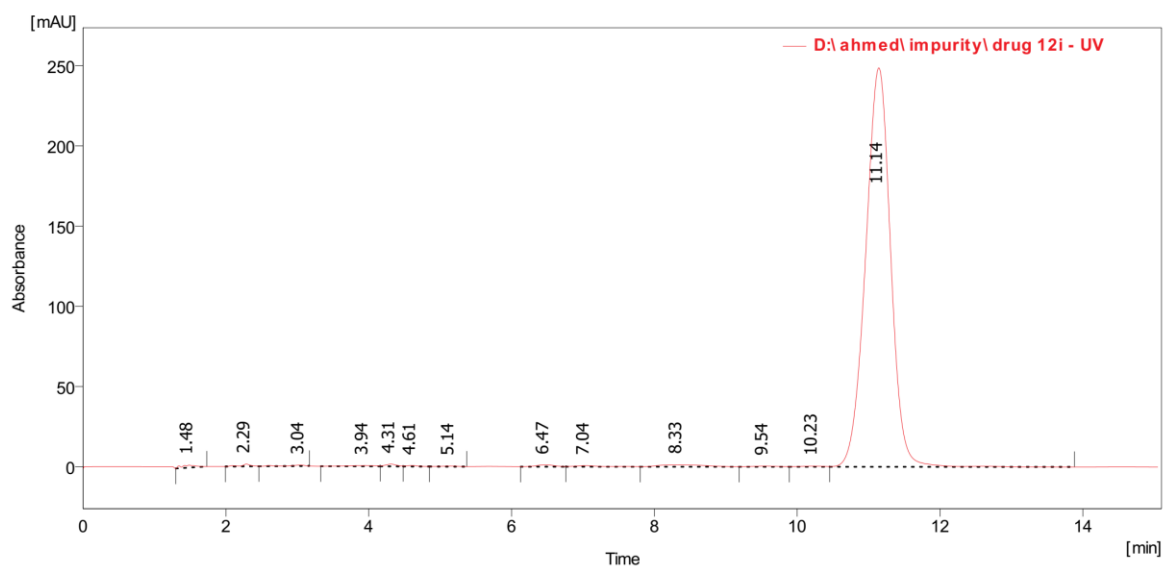
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 12i.



Result Table (Uncal - D:\ahmed\impurity\drug 12i - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.483	22.251	0.4	
2	2.285	14.525	0.2	
3	3.040	10.982	0.2	
4	3.937	14.415	0.2	
5	4.312	15.538	0.2	
6	4.605	6.737	0.1	
7	5.142	4.814	0.1	
8	6.470	20.589	0.3	
9	7.035	17.227	0.3	
10	8.333	56.802	0.9	
11	9.538	11.067	0.2	
12	10.228	10.346	0.2	
13	11.143	6043.403	96.7	
Total		6248.696	100.0	

HPLC chromatogram of compound 12i.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13a.prm	File Created	: 22/05/2025 12:11:10 م
Origin	: Acquired, Acquisition started 22/05/2025 11:56:04 ص	Acquired Date	: 22/05/2025 12:11:10 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 12:15:32 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 12:15:43 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13a
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

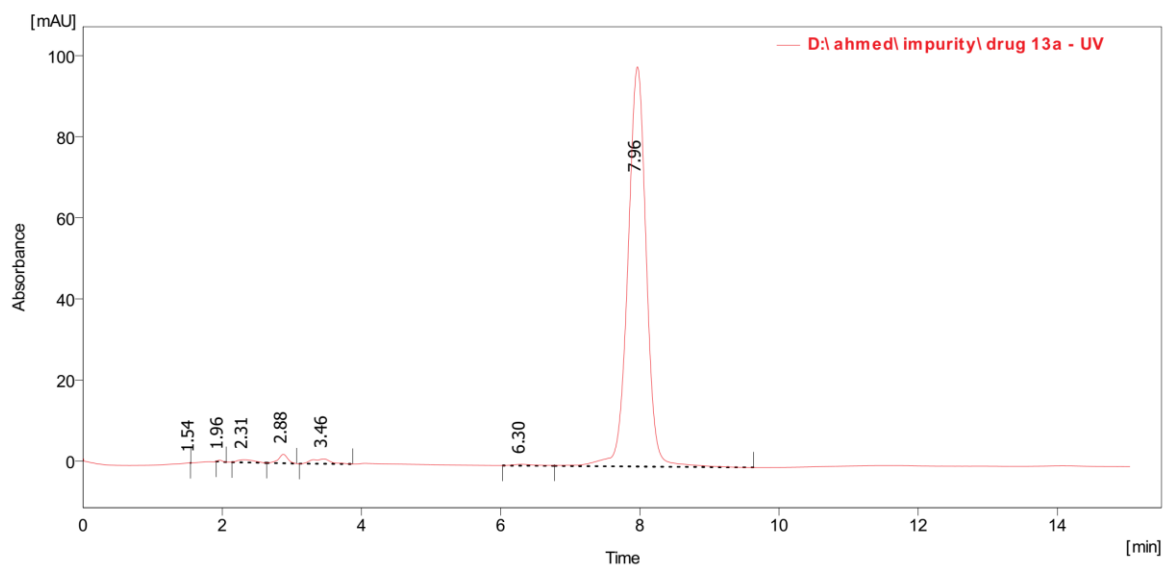
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13a.



Result Table (Uncal - D:\ahmed\impurity\drug 13a - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.545	0.000	0.0	
2	1.960	1.641	0.1	
3	2.313	11.102	0.6	
4	2.877	20.105	1.1	
5	3.458	22.799	1.2	
6	6.300	8.201	0.4	
7	7.965	1819.245	96.6	
Total		1883.093	100.0	

HPLC chromatogram of compound 13a.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13b.prm	File Created	: 22/05/2025 12:26:21 م
Origin	: Acquired, Acquisition started 22/05/2025 12:11:13 م	Acquired Date	: 22/05/2025 12:26:21 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 22/05/2025 12:29:54 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 12:30:07 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13b
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص
Description : aa
Created : 17/07/2023 02:47:53 ص By : Administrator
Modified : 22/05/2025 11:09:38 ص By : Administrator

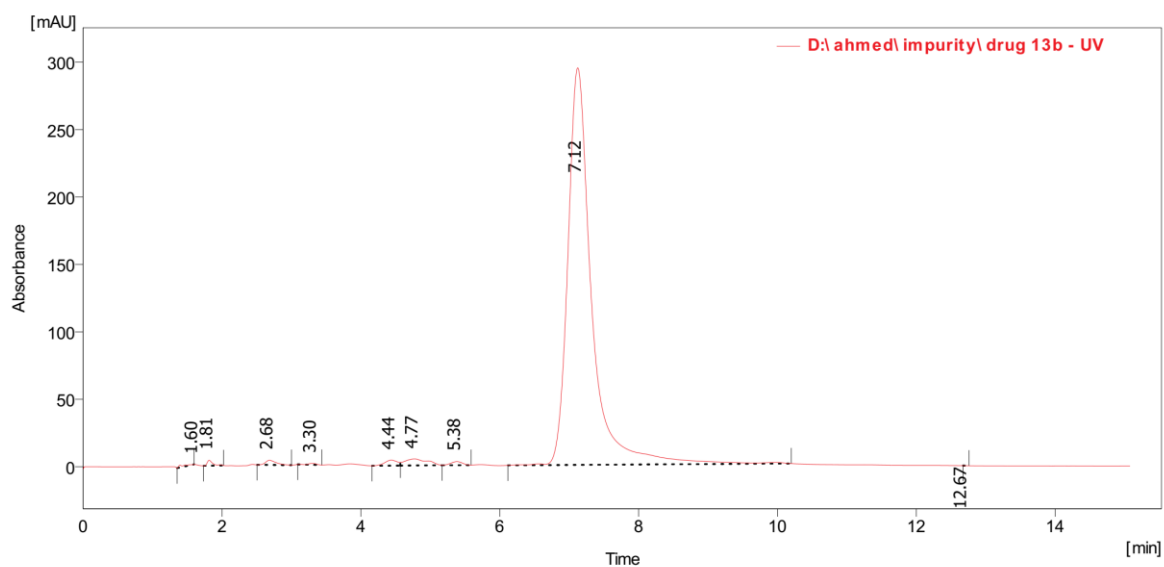
Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes
Description : aa
Created : 17/07/2023 02:47:53 ص By : Administrator
Modified : 22/05/2025 11:09:38 ص By : Administrator

Column	:	Detection	:
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		

Autostop	: None	External Start	: Start Only, Down
Subtraction Chromatogram	: (None)	Matching	: Scale Subtraction Chromatogram

Base	: Not Used	Calibration File	: None	Calculation	: Uncal
Scale Factor	: Not Used	Units After Scaling	: Not Used	Uncal. Response	: 0
Unretained Time	: 0.00 min	Column Length	: 50.00 mm	Column Calc.	: From Width at 50% of Height
Result Table Reports	: All Peaks	Hide ISTD Peak	: Enabled		
Method User Variables:					
MethodUserVar1	: 0	MethodUserVar2	: 0	MethodUserVar3	: 0

HPLC chromatogram info of compound 13b.



Result Table (Uncal - D:\ahmed\impurity\drug 13b - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.597	9.716	0.1	
2	1.815	21.689	0.3	
3	2.683	36.858	0.5	
4	3.303	8.821	0.1	
5	4.438	51.197	0.7	
6	4.772	110.834	1.5	
7	5.383	31.270	0.4	
8	7.123	6995.840	96.3	
9	12.673	0.028	0.0	
Total		7266.253	100.0	

HPLC chromatogram of compound 13b.



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Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 13c.prm	File Created	: 22/05/2025 12:41:32 م
Origin	: Acquired, Acquisition started 22/05/2025 12:26:23 م	Acquired Date	: 22/05/2025 12:41:32 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #4; 22/05/2025 12:45:12 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 12:45:32 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13c
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\to\tolt separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\to\tolt separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

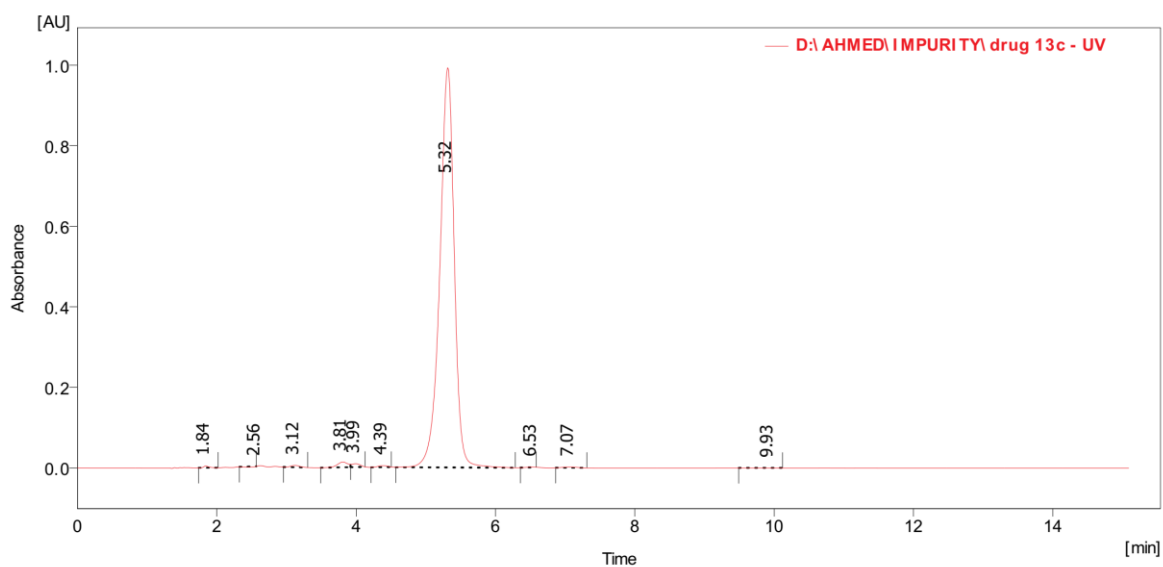
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13c.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 13c - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.840	21.232	0.1	
2	2.565	15.111	0.1	
3	3.123	39.755	0.3	
4	3.808	134.938	0.9	
5	3.993	70.862	0.5	
6	4.387	34.325	0.2	
7	5.315	14319.356	97.6	
8	6.533	3.298	0.0	
9	7.067	24.302	0.2	
10	9.932	2.047	0.0	
Total		14665.226	100.0	

HPLC chromatogram of compound 13c.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13d.prm	File Created	: 22/05/2025 12:56:49 م
Origin	: Acquired, Acquisition started 22/05/2025 12:41:47 م	Acquired Date	: 22/05/2025 12:56:49 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #4; 22/05/2025 12:59:46 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 01:00:20 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13d
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

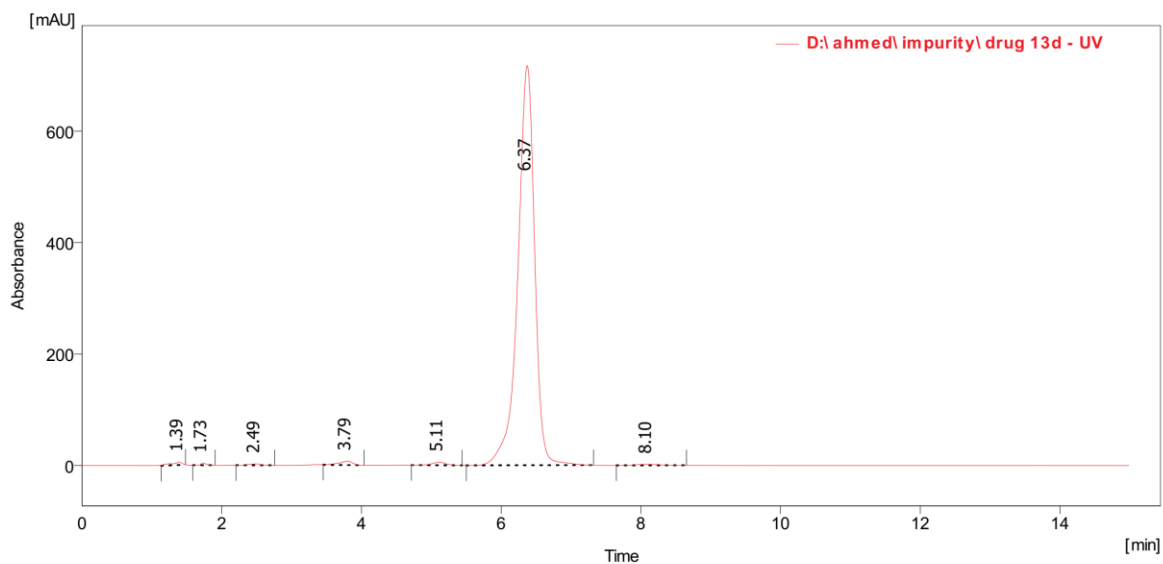
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13d.



Result Table (Uncal - D:\ahmed\impurity\drug 13d - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.390	58.308	0.5	
2	1.733	20.689	0.2	
3	2.492	30.023	0.2	
4	3.795	95.521	0.8	
5	5.112	75.312	0.6	
6	6.373	12022.840	97.4	
7	8.102	41.481	0.3	
	Total	12344.175	100.0	

HPLC chromatogram of compound 13d.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13e.prm	File Created	: 22/05/2025 01:12:02 م
Origin	: Acquired, Acquisition started 22/05/2025 12:56:53 م	Acquired Date	: 22/05/2025 01:12:02 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 01:14:03 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 01:14:19 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13e
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\to\to\to separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\to\to\to separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

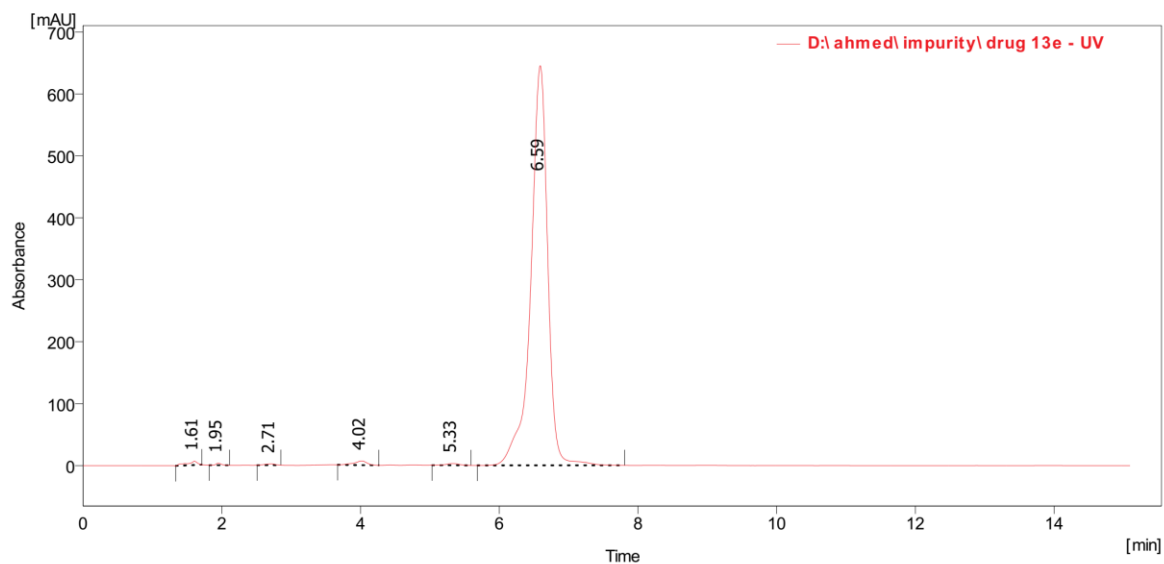
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13e.



Result Table (Uncal - D:\ahmed\impurity\drug 13e - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.605	64.085	0.6	
2	1.948	17.238	0.2	
3	2.712	22.359	0.2	
4	4.017	87.202	0.8	
5	5.330	36.741	0.3	
6	6.590	10969.564	98.0	
	Total	11197.189	100.0	

HPLC chromatogram of compound 13e.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13f.prm	File Created	: 22/05/2025 01:27:18 م
Origin	: Acquired, Acquisition started 22/05/2025 01:12:05 م	Acquired Date	: 22/05/2025 01:27:18 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 22/05/2025 01:30:41 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 01:31:05 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13f
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

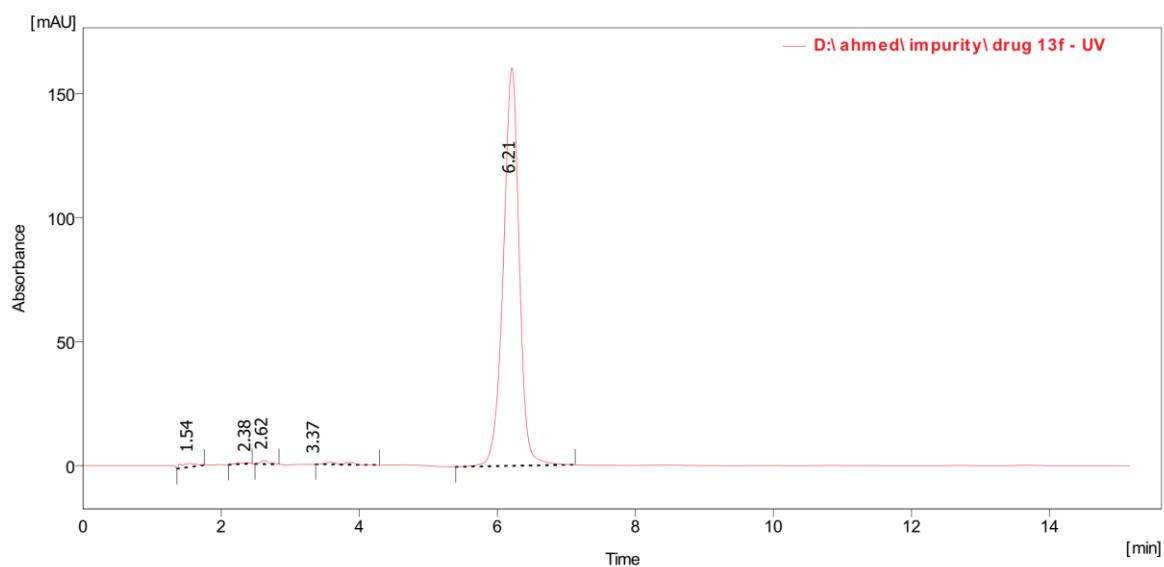
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13f.



Result Table (Uncal - D:\ahmed\impurity\drug 13f - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.542	22.776	0.9	
2	2.378	6.805	0.3	
3	2.622	12.693	0.5	
4	3.373	19.499	0.7	
5	6.210	2570.964	97.7	
	Total	2632.737	100.0	

HPLC chromatogram of compound 13f.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13g.prm	File Created	: 22/05/2025 01:42:28 م
Origin	: Acquired, Acquisition started 22/05/2025 01:27:24 م	Acquired Date	: 22/05/2025 01:42:27 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 01:46:16 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 01:46:28 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13g
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

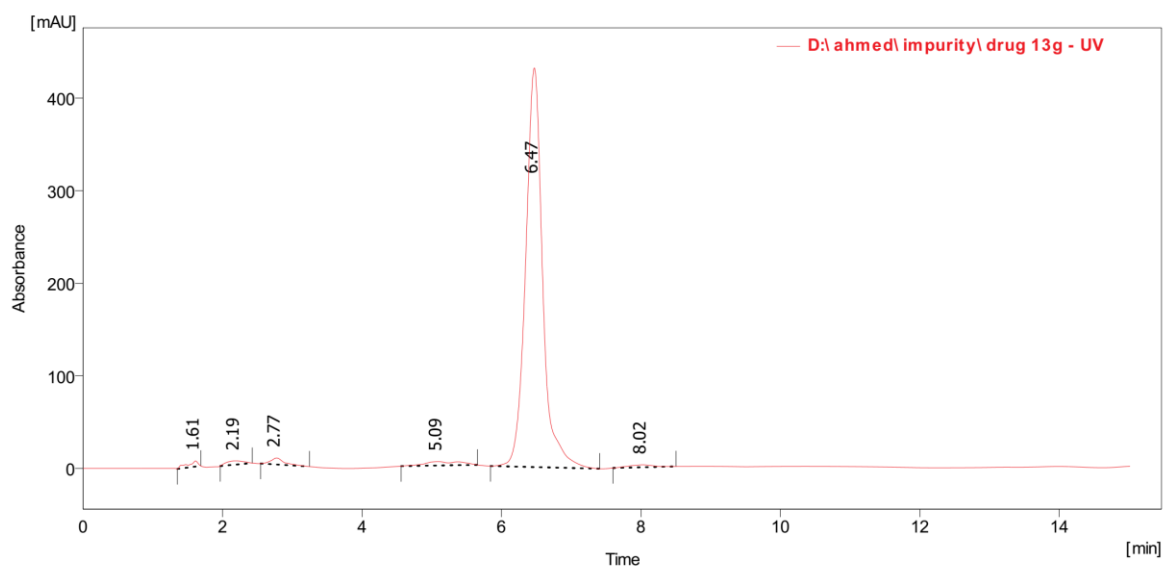
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13g.



Result Table (Uncal - D:\ahmed\impurity\drug 13g - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.612	64.175	0.8	
2	2.187	71.600	0.9	
3	2.775	97.901	1.3	
4	5.092	148.254	1.9	
5	6.470	7312.318	94.2	
6	8.023	65.159	0.8	
	Total	7759.407	100.0	

HPLC chromatogram of compound 13g.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13h.prm	File Created	: 22/05/2025 01:57:35 م
Origin	: Acquired, Acquisition started 22/05/2025 01:42:31 م	Acquired Date	: 22/05/2025 01:57:35 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 02:03:16 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 02:03:37 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13h
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

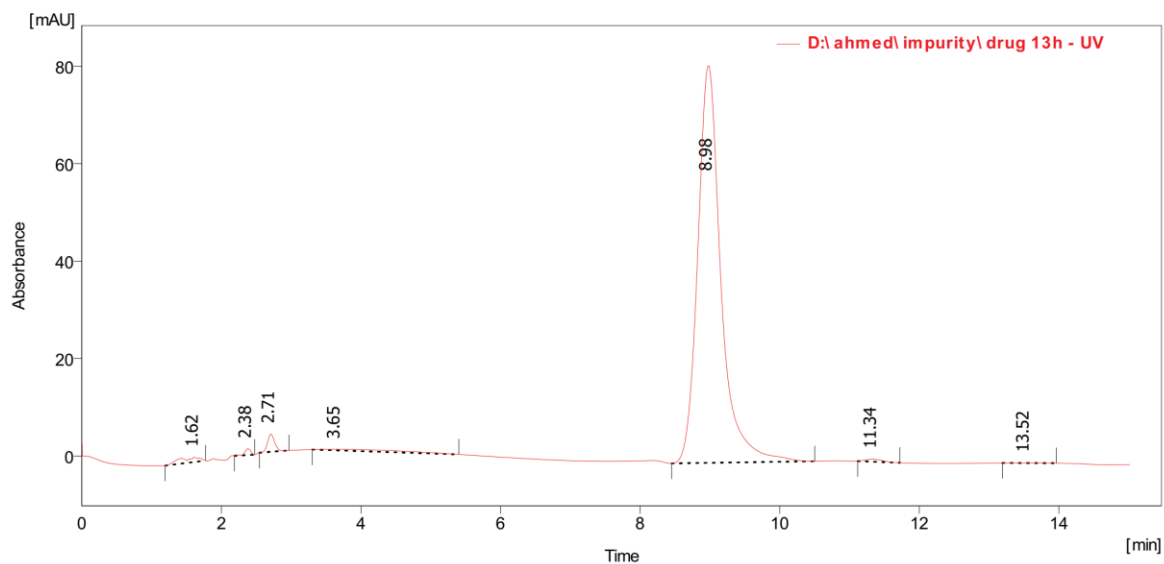
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13h.



Result Table (Uncal - D:\ahmed\impurity\drug 13h - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.617	21.252	1.1	
2	2.380	7.343	0.4	
3	2.710	25.525	1.3	
4	3.647	28.143	1.4	
5	8.978	1884.976	95.3	
6	11.335	9.100	0.5	
7	13.523	1.093	0.1	
	Total	1977.431	100.0	

HPLC chromatogram of compound 13h.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 13i.prm	File Created	: 22/05/2025 02:12:48 م
Origin	: Acquired, Acquisition started 22/05/2025 01:57:39 م	Acquired Date	: 22/05/2025 02:12:48 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 02:15:53 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 02:16:07 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 13i
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

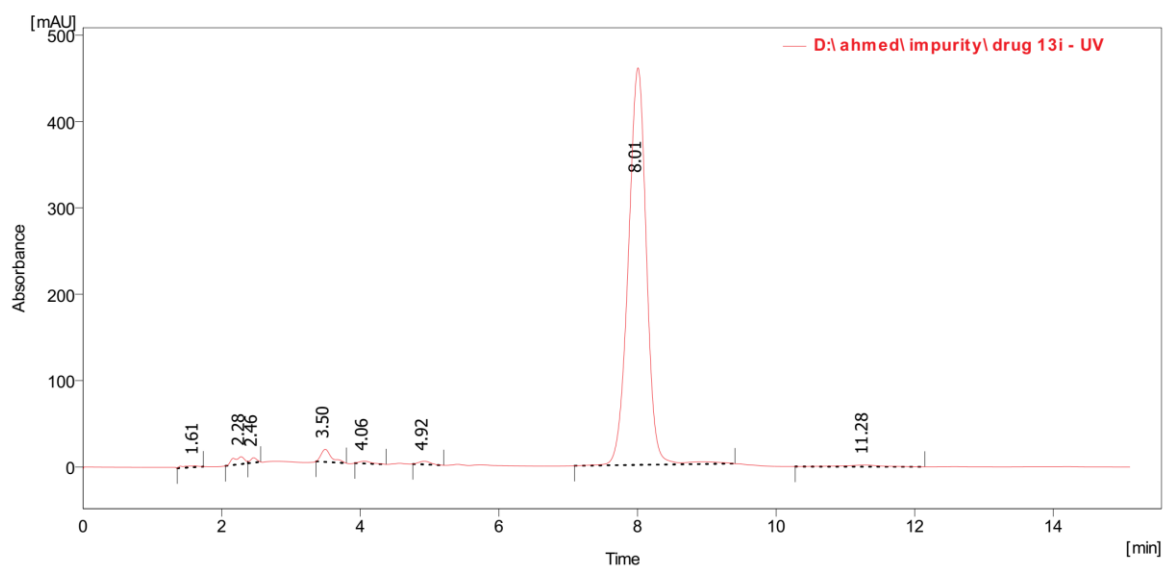
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 13i.



Result Table (Uncal - D:\ahmed\impurity\drug 13i - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.610	28.470	0.3	
2	2.280	101.253	1.1	
3	2.462	35.889	0.4	
4	3.495	152.493	1.7	
5	4.058	32.397	0.4	
6	4.925	44.135	0.5	
7	8.007	8367.562	94.7	
8	11.275	75.035	0.8	
	Total	8837.234	100.0	

HPLC chromatogram of compound 13i.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14a.prm	File Created	: 22/05/2025 02:27:53 م
Origin	: Acquired, Acquisition started 22/05/2025 02:12:51 م	Acquired Date	: 22/05/2025 02:27:53 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 22/05/2025 02:31:02 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 02:31:18 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14a
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

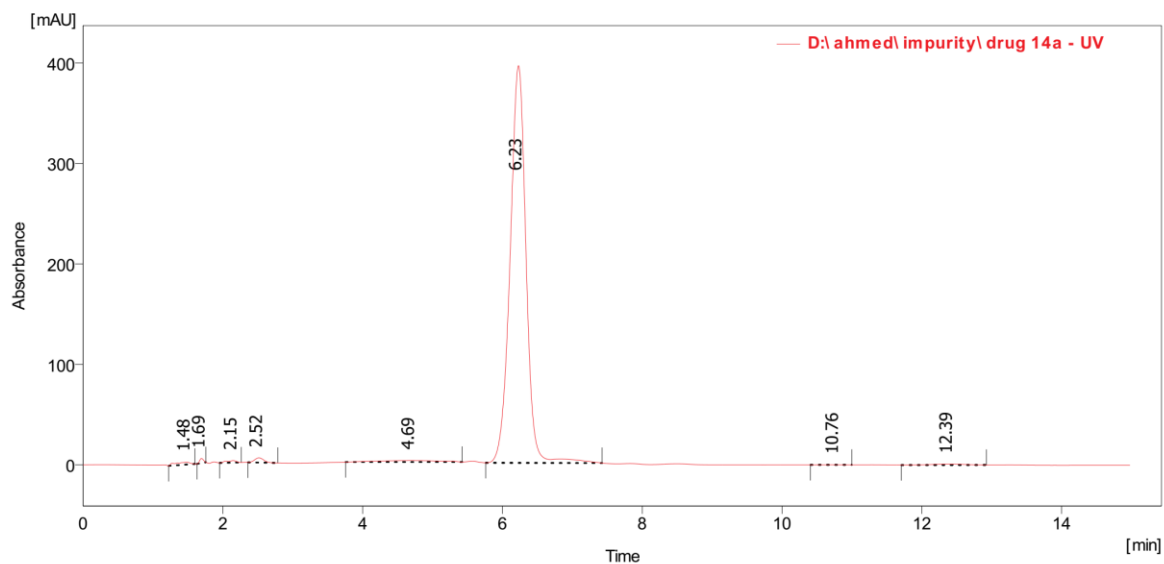
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14a.



Result Table (Uncal - D:\ahmed\impurity\drug 14a - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.478	38.178	0.6	
2	1.693	17.093	0.3	
3	2.147	20.455	0.3	
4	2.515	42.092	0.6	
5	4.690	93.448	1.4	
6	6.228	6279.056	96.2	
7	10.757	2.572	0.0	
8	12.385	32.770	0.5	
	Total	6525.666	100.0	

HPLC chromatogram info of compound 14a.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14b.prm	File Created	: 25/05/2025 11:11:58 ص
Origin	: Acquired, Acquisition started 25/05/2025 10:56:31 ص	Acquired Date	: 25/05/2025 11:11:58 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 11:14:19 ص, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 11:14:24 ص
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14b
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

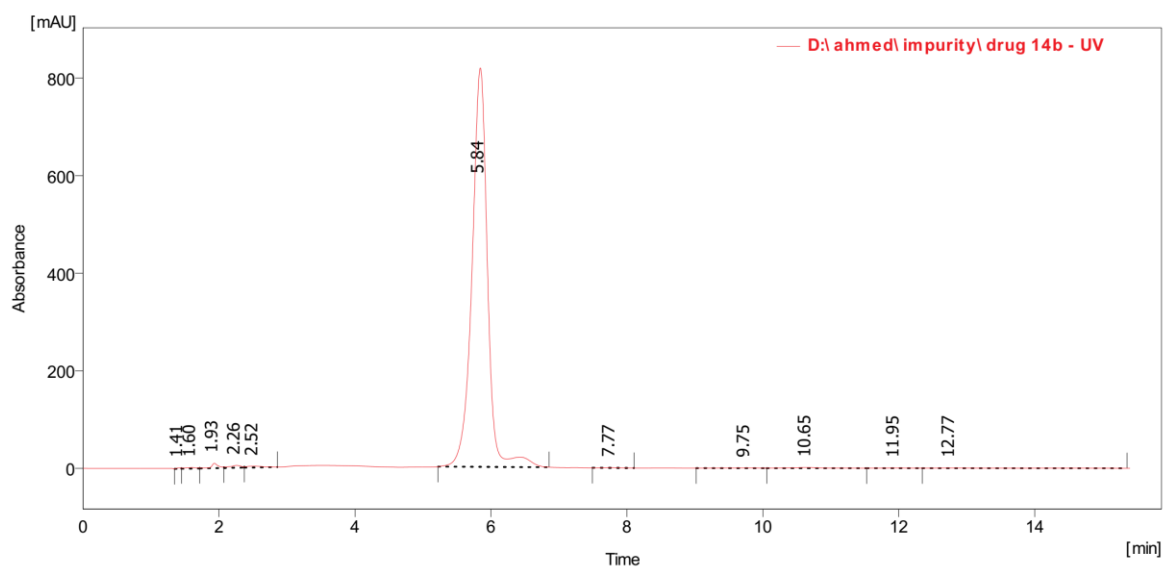
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14b.



Result Table (Uncal - D:\ahmed\impurity\drug 14b - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.412	8.084	0.1	
2	1.600	27.204	0.2	
3	1.930	70.886	0.5	
4	2.257	58.284	0.4	
5	2.518	47.583	0.4	
6	5.843	12989.241	97.4	
7	7.772	10.771	0.1	
8	9.752	20.916	0.2	
9	10.652	47.798	0.4	
10	11.950	13.057	0.1	
11	12.767	36.000	0.3	
Total		13329.826	100.0	

HPLC chromatogram of compound 14b.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14c.prm	File Created	: 25/05/2025 11:27:53 ص
Origin	: Acquired, Acquisition started 25/05/2025 11:12:45 ص	Acquired Date	: 25/05/2025 11:27:53 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 11:30:45 ص, 1A: 8.0 Rev.3	Printed Date	: 25/05/2025 11:31:01 ص
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14c
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

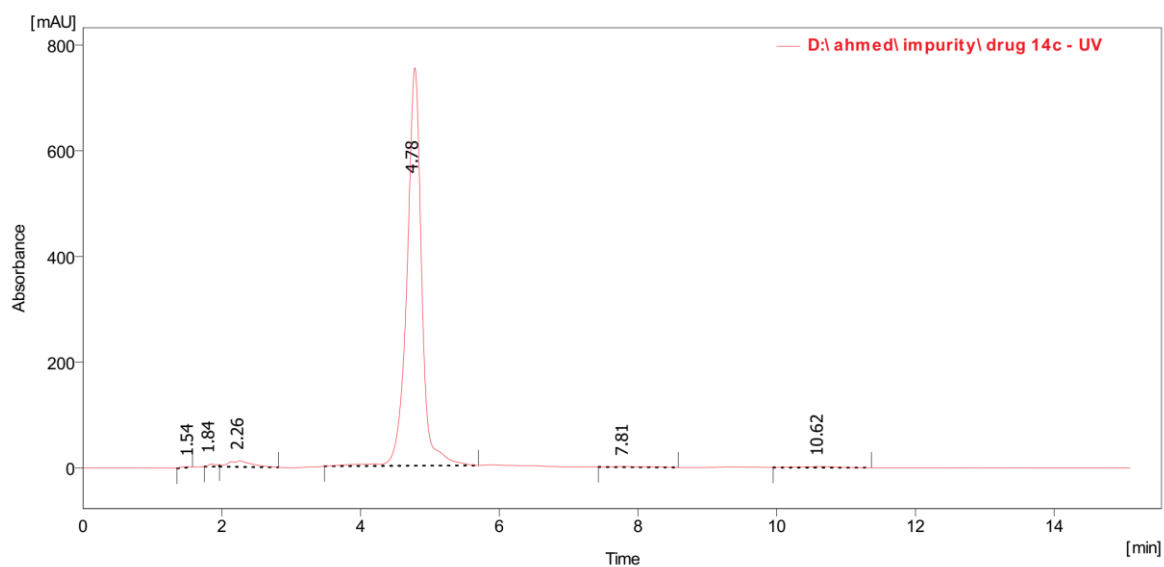
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14c.



Result Table (Uncal - D:\ahmed\impurity\drug 14c - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.538	12.784	0.1	
2	1.843	40.037	0.3	
3	2.263	265.722	2.3	
4	4.783	11106.056	96.2	
5	7.810	53.841	0.5	
6	10.618	68.102	0.6	
	Total	11546.542	100.0	

HPLC chromatogram of compound 14c.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14d.prm	File Created	: 25/05/2025 11:42:59 ص
Origin	: Acquired, Acquisition started 25/05/2025 11:27:56 ص	Acquired Date	: 25/05/2025 11:42:59 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 11:45:14 ص, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 11:45:27 ص
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14d
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

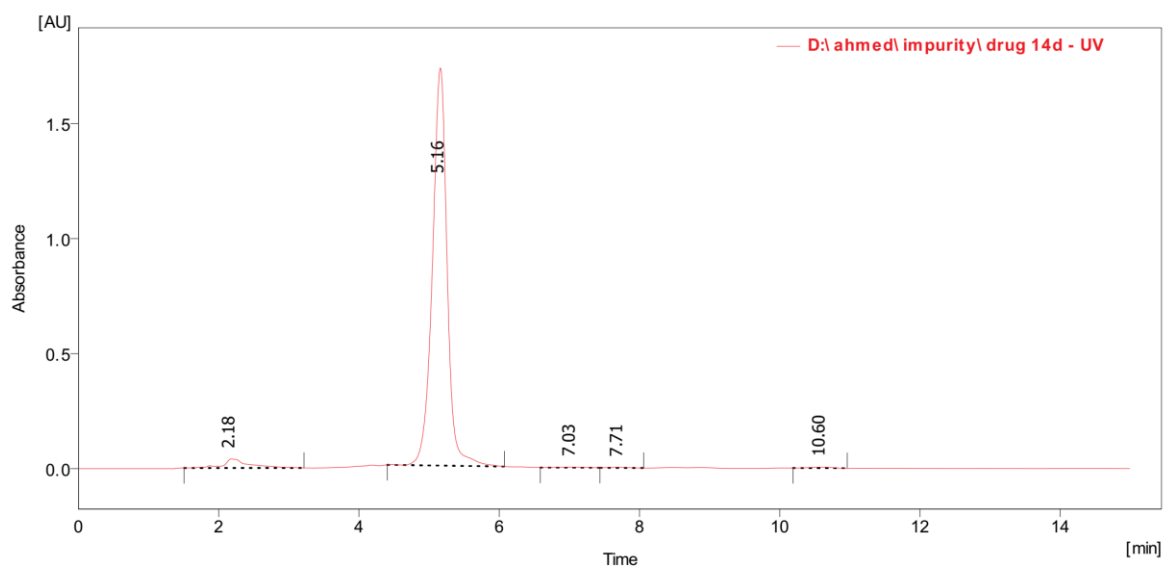
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14d.



Result Table (Uncal - D:\ahmed\impurity\drug 14d - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	2.178	1002.250	3.8	
2	5.160	25311.773	95.4	
3	7.032	65.716	0.2	
4	7.708	44.418	0.2	
5	10.597	95.654	0.4	
	Total	26519.810	100.0	

HPLC chromatogram of compound 14d.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14e.prm	File Created	: 22/05/2025 01:47:18 م
Origin	: Acquired, Acquisition started 22/05/2025 01:12:05 م	Acquired Date	: 22/05/2025 01:47:18 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #3; 22/05/2025 01:30:41 م, IA: 8.0 Rev.3	Printed Date	: 22/05/2025 01:58:05 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14e
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #201; 22/05/2025 11:09:38 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 22/05/2025 11:09:38 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

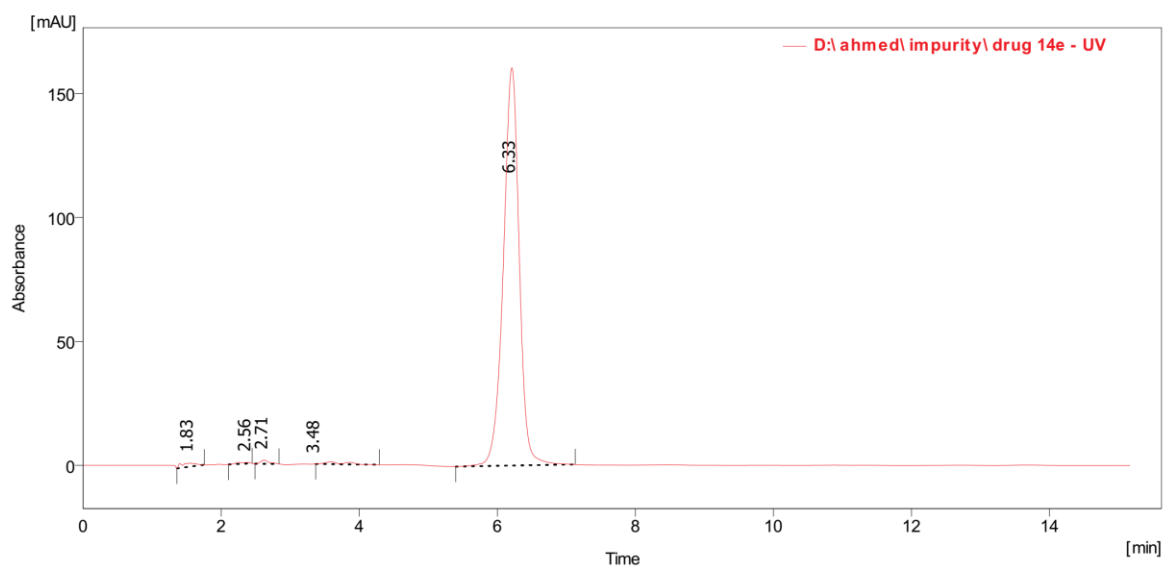
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14e.



Result Table (Uncal - D:\ahmed\impurity\drug 14e - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.831	22.776	1.2	
2	2.568	6.805	0.5	
3	2.712	12.693	0.4	
4	3.483	19.499	0.8	
5	6.332	2570.964	97.1	
	Total	2632.737	100.0	

HPLC chromatogram of compound 14e.



Sohag University

CENTRAL LAB

DR MOHAMED GAMAL

Chromatogram Info:

File Name	: D:\AHMED\IMPURITY\drug 14f.prm	File Created	: 25/05/2025 11:58:04 ص
Origin	: Acquired, Acquisition started 25/05/2025 11:43:02 ص	Acquired Date	: 25/05/2025 11:58:04 ص
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 12:00:43 م, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 12:02:44 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID	: drug 14f
Sample	:

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1	: 0
AnalysisUserVar2	: 0
AnalysisUserVar3	: 0

Method User Variables:

MethodUserVar1	: 0
MethodUserVar2	: 0
MethodUserVar3	: 0

Acquisition Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #202; 25/05/2025 10:45:28 ص + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 10:45:28 ص

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

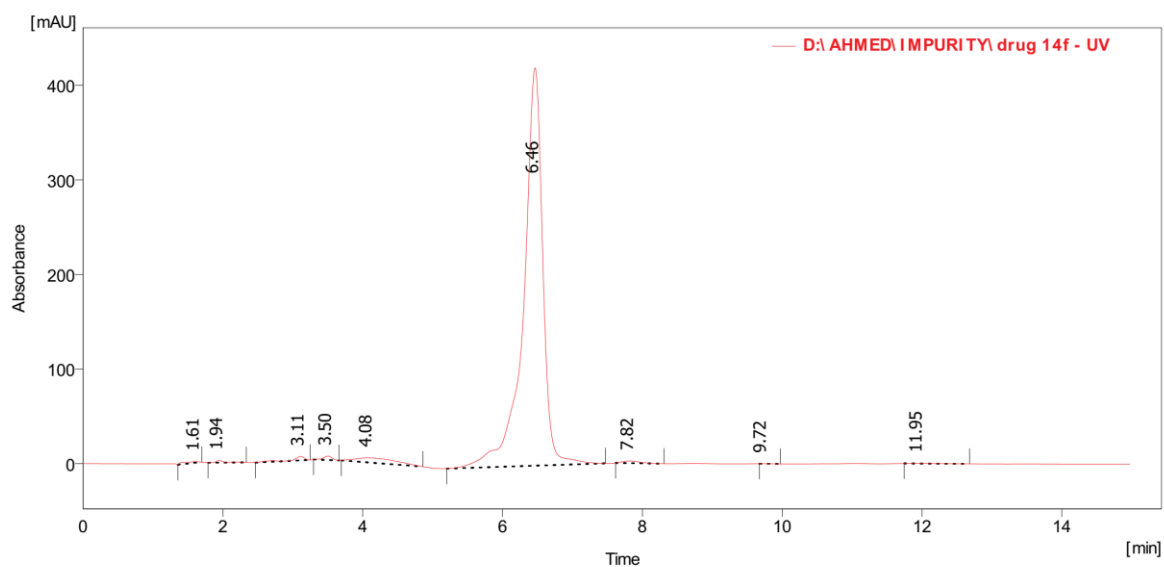
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14f.



Result Table (Uncal - D:\AHMED\IMPURITY\drug 14f - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.610	25.139	0.3	
2	1.943	19.945	0.2	
3	3.110	50.718	0.6	
4	3.500	36.473	0.4	
5	4.078	212.424	2.5	
6	6.463	8078.759	95.3	
7	7.822	40.362	0.5	
8	9.722	0.847	0.0	
9	11.952	9.466	0.1	
Total		8474.133	100.0	

HPLC chromatogram of compound 14f.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14g.prm	File Created	: 25/05/2025 12:21:35 م
Origin	: Acquired, Acquisition started 25/05/2025 12:06:30 م	Acquired Date	: 25/05/2025 12:21:35 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 12:23:36 م, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 12:23:54 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14g
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\to\to\to separation - #204; 25/05/2025 12:01:33 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Processing Method : D:\ahmed\to\to\to separation - #204; 25/05/2025 12:01:33 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

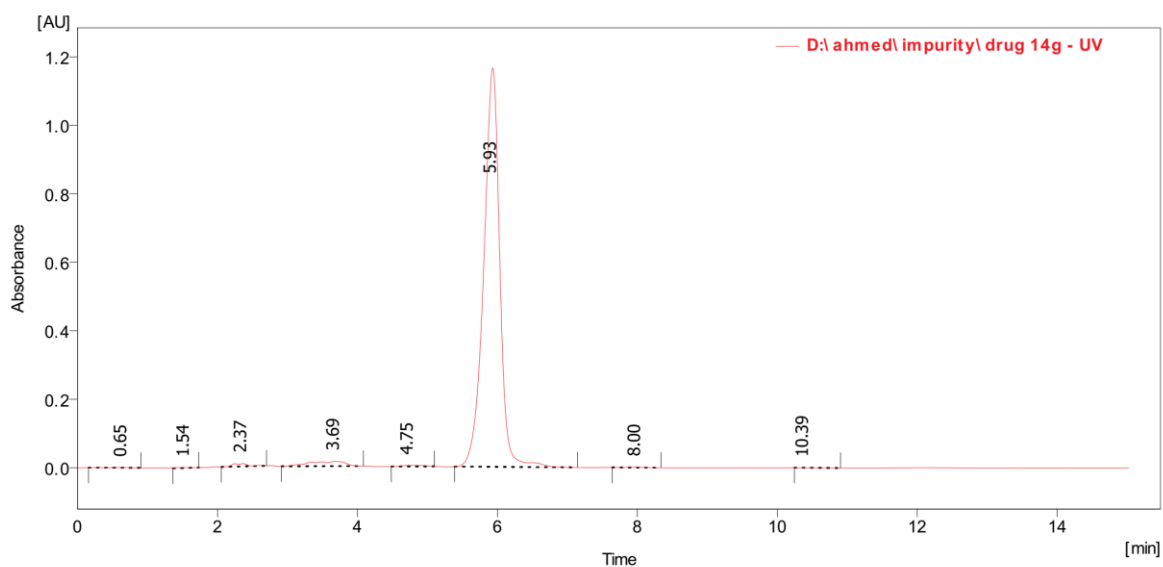
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14g.



Result Table (Uncal - D:\ahmed\impurity\drug 14g - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	0.652	22.172	0.1	
2	1.545	22.769	0.1	
3	2.367	128.525	0.7	
4	3.688	510.202	2.6	
5	4.745	67.244	0.3	
6	5.933	18555.176	96.0	
7	7.995	20.591	0.1	
8	10.393	8.138	0.0	
	Total	19334.816	100.0	

HPLC chromatogram of compound 14g.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14h.prm	File Created	: 25/05/2025 12:36:39 م
Origin	: Acquired, Acquisition started 25/05/2025 12:21:36 م	Acquired Date	: 25/05/2025 12:36:39 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 12:39:02 م, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 12:39:20 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 1h
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #204; 25/05/2025 12:01:33 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #204; 25/05/2025 12:01:33 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Column :

Detection :

Mobile Phase :

Temperature :

Flow Rate :

Pressure :

Note :

Autostop : None

External Start : Start Only, Down

Subtraction Chromatogram : (None)

Matching : Scale Subtraction Chromatogram

Base : Not Used

Calibration File : None

Calculation : Uncal

Scale Factor : Not Used

Units After Scaling : Not Used

Uncal. Response : 0

Unretained Time : 0.00 min

Column Length : 50.00 mm

Column Calc. : From Width at 50% of Height

Result Table Reports : All Peaks

Hide ISTD Peak : Enabled

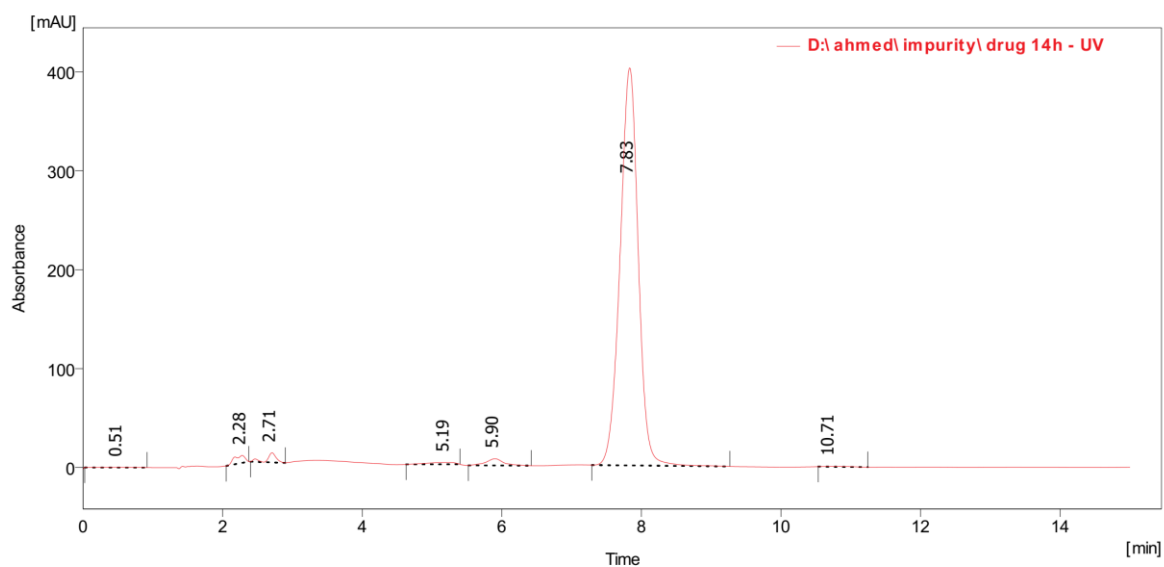
Method User Variables:

MethodUserVar1 : 0

MethodUserVar2 : 0

MethodUserVar3 : 0

HPLC chromatogram info of compound 14h.



Result Table (Uncal - D:\ahmed\impurity\drug 14h - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	0.505	6.906	0.1	
2	2.278	85.368	1.1	
3	2.707	86.384	1.1	
4	5.192	51.126	0.7	
5	5.900	122.406	1.6	
6	7.832	7285.586	95.3	
7	10.710	10.441	0.1	
	Total	7648.216	100.0	

HPLC chromatogram of compound 14h.



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Chromatogram Info:

File Name	: D:\ahmed\impurity\drug 14i.prm	File Created	: 25/05/2025 12:51:48 م
Origin	: Acquired, Acquisition started 25/05/2025 12:36:44 م	Acquired Date	: 25/05/2025 12:51:47 م
Original Project	: HPLC	By	: Administrator

Printed Version Info:

Printed Version	: - #2; 25/05/2025 12:56:23 م, IA: 8.0 Rev.3	Printed Date	: 25/05/2025 12:56:29 م
Report Style	: D:\HPLC\Common\Chromatogram.sty	By	: Administrator
Calibration File	: None		
Project	: HPLC		

Sample Description:

Sample ID : drug 14i
Sample :

Sample Parameters:

Amount	: 0.0	Dilution	: 1.0
Inj. Volume [μL]	: 20.0		
ISTD1 Amount	: 0.0	ISTD2 Amount	: 0.0
ISTD3 Amount	: 0.0	ISTD4 Amount	: 0.0
ISTD5 Amount	: 0.0	ISTD6 Amount	: 0.0
ISTD7 Amount	: 0.0	ISTD8 Amount	: 0.0
ISTD9 Amount	: 0.0	ISTD10 Amount	: 0.0

Analysis User Variables:

AnalysisUserVar1 : 0
AnalysisUserVar2 : 0
AnalysisUserVar3 : 0

Method User Variables:

MethodUserVar1 : 0
MethodUserVar2 : 0
MethodUserVar3 : 0

Acquisition Method : D:\ahmed\toit\toit separation - #204; 25/05/2025 12:01:33 م

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Processing Method : D:\ahmed\toit\toit separation - #204; 25/05/2025 12:01:33 م + manual changes

Description : aa

Created : 17/07/2023 02:47:53 ص

By : Administrator

Modified : 25/05/2025 12:01:33 م

By : Administrator

Column :
Mobile Phase :
Flow Rate :
Note :

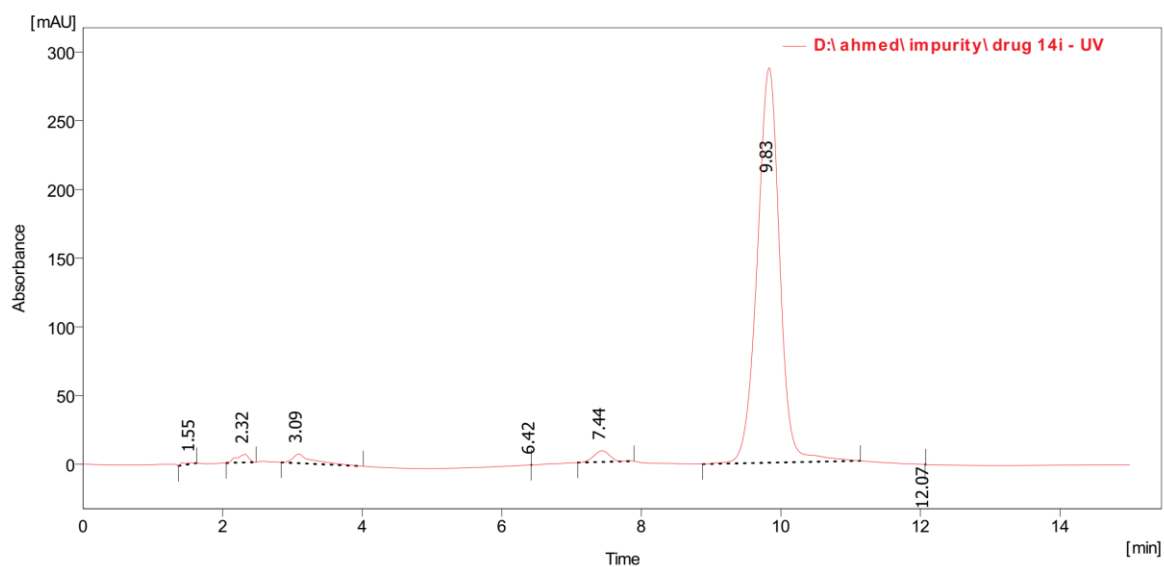
Detection :
Temperature :
Pressure :

Autostop : None
Subtraction Chromatogram : (None)

External Start : Start Only, Down
Matching : Scale Subtraction Chromatogram

Base	: Not Used	Calibration File	: None	Calculation	: Uncal
Scale Factor	: Not Used	Units After Scaling	: Not Used	Uncal. Response	: 0
Unretained Time	: 0.00 min	Column Length	: 50.00 mm	Column Calc.	: From Width at 50% of Height
Result Table Reports	: All Peaks	Hide ISTD Peak	: Enabled		
Method User Variables:					
MethodUserVar1	: 0	MethodUserVar2	: 0	MethodUserVar3	: 0

HPLC chromatogram info of compound 14i.



Result Table (Uncal - D:\ahmed\impurity\drug 14i - UV)

	Reten. Time [min]	Area [mAU.s]	Area [%]	Compound Name
1	1.548	13.022	0.2	
2	2.320	72.295	1.1	
3	3.087	135.720	2.0	
4	6.423	0.000	0.0	
5	7.437	132.484	2.0	
6	9.832	6408.398	94.8	
7	12.068	0.001	0.0	
Total		6761.921	100.0	

HPLC chromatogram of compound 14i.

Elemental analysis results

The compounds codes have been changed into the following codes

codes **6a-b** changed in the manuscript into **9a-b**

codes **9a-i** changed in the manuscript into **12a-i**

codes **9j-r** changed in the manuscript into **14a-i**



جامعة الأزهر
Al-Azhar University
المركز الإقليمي للفطريات وتطبيقاتها
The Regional Center for Mycology and Biotechnology

Requester Data:
Name: Dr. Omar Mamdouh Kamal Alshazly
Authority: Faculty of Pharmacy, Sohag University

Sample Data:
Ten samples had been submitted for elemental analysis.

Analysis Report:

Sample Code	C%	H%	N%
6a	63.91	3.89	17.65
6b	61.54	4.15	16.12
9a	69.85	4.41	12.23
9b	68.61	4.68	11.68
9c	67.40	4.62	11.07
9d	65.82	4.68	10.61
9e	68.05	4.19	11.87
9f	61.85	3.73	10.84
9g	65.12	3.94	13.60
9h	70.19	4.67	11.98

INVESTIGATOR
Dr. M. M. M. M. M.

DIRECTOR
M. M. M. M. M.
17.7.2024

شارع المقيم الدائم - مدينة نصر - القاهرة
البريد الإلكتروني: rcmb@azhar.edu.eg
الموقع الإلكتروني:
صندوق بريد ١٧٥١ مدينة نصر القاهرة

تليفون: ٢٢٦٢٠٣٧٣ (٠٢٠٢) فاكس: ٢٢٦٢٠٣٧٣ (٠٢٠٢)
<http://www.azhar.edu.eg.htm>
http://www.azhar.edu.eg/pages/fungi_center.htm
Facebook: RCMB AZHAR



جامعة الأزهر
Al-Azhar University
المركز الإقليمي للفطريات وتطبيقاتها
The Regional Center for Mycology and Biotechnology



Requester Data:

Name: Dr. Omar Mamdouh Kamal Alshazly

Authority: Faculty of Pharmacy, Sohag University

Sample Data:

Ten samples had been submitted for elemental analysis.

Analysis Report:

Sample Code	C%	H%	N%
9i	74.72	4.37	11.26
9j	68.71	4.59	11.63
9k	67.43	4.67	11.04
9L	66.12	4.75	10.61
9m	65.09	4.68	10.13
9n	66.38	4.32	11.26
9o	60.89	3.96	10.37
9p	64.01	4.15	13.03
9q	68.69	4.78	11.35
9r	70.84	4.69	10.67

INVESTIGATOR

Dr. M. M. Mourad

DIRECTOR

M. Mamdouh
17.7.2024

تليفون : ٢٢٦٢٠٣٧٣ (٠٢٠٢) فاكس : ٢٢٦٢٠٣٧٣ (٠٢٠٢)
[http:// www.azhar.edu.eg.htm](http://www.azhar.edu.eg.htm)
http://www.azhar.edu.eg/pages/fungi_center.htm
Facebook: RCMB AZHAR

شارع المصطفى الدائم - مدينة نصر - القاهرة
البريد الإلكتروني : rcmb@azhar.edu.eg
الموقع الإلكتروني :

صندوق بريد ١١٧٥١ مدينة نصر القاهرة



جامعة الأزهر
Al-Azhar University
المركز الإقليمي للفطريات وتطبيقاتها
The Regional Center for Mycology and Biotechnology



Requester Data:

Name: Dr. Omar Mamdouh Kamal Alshazly

Authority: Faculty of Pharmacy, Sohag University

Sample Data:

One sample had been submitted for elemental analysis.

Analysis Report:

Sample Code	C%	H%	N%
12i	72.25	4.37	11.26

Head of the Lab

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DIRECTOR

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12/5/2025

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تليفون: ٢٢٦٢٠٣٧٣ (٠٢) فاكس: ٢٢٦٢٠٣٧٣ (٠٢)
<http://www.azhar.edu.eg.htm>
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Docking methodology

AutoDock Vina v.1.2.0 was used for carrying out the molecular docking [1, 2]. The experimental procedure followed for the in silico molecular docking analysis of the synthesized compound was as reported by Blessy and Sharmila [3] with slight modifications. The interactions of the synthesized compounds and reference drugs with the proteins VEGFR-2 (PDB ID: 2OH4) and EGFR (PDB ID: 1M17) were studied using AutoDock Vina v.1.2.0 [55]. The structure of docked compound was built using Chem. 3D ultra 12.0 software [Chemical Structure Drawing Standard; Cambridge Soft corporation, USA (2010)] assigned with proper 2D orientation. The energy of each molecule was minimized using ChemBio3D and were then used as input for AutoDock Vina, in order to carry out the docking simulation. The crystal structures of VEGFR-2 (PDB ID: 2OH4) and EGFR (PDB ID: 1M17) enzymes were downloaded from protein data bank. The protein preparation was done using the reported standard protocol; the target protein file was prepared by leaving the associated residue with protein using Auto preparation of target protein file AutoDock 4.2(MGLTools 1.5.6). The graphical user interface program was used to set the grid box for docking simulations. The grid was set so that it surrounds the region of interest in the macromolecule.⁴³The docking algorithm provided with AutoDock Vina v.1.2.0 was used to search for the best docked conformation between ligand and protein. During the docking process, a maximum of nine conformers were considered for each ligand. The conformations with the most favorable (least) free binding energy were selected for analyzing the interactions between the target receptor and ligands by Discovery Studio Visualizer and PyMOL. The ligands are represented indifferent color; H-bonds and the interacting residues are represented in ball and stick model representation [1].

References

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- [2] O. Trott, A.J. Olson, AutoDock Vina: improving the speed and accuracy of docking with a new scoring function, efficient optimization, and multithreading, *Journal of computational chemistry* 31(2) (2010) 455-461.
- [3] J.J. Blessy, D.J.S. Sharmila, Molecular simulation of N-acetylneuraminic acid analogs and molecular dynamics studies of cholera toxin-Neu5Gc complex, *Journal of Biomolecular Structure and Dynamics* 33(5) (2015) 1126-1139.